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Social Anxiety Reduction in the Context of Social Modeling  
Utilizing a Placebo Alcohol Beverage

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts in Psychology

by

Kyle K. Jackson  
University of Arkansas  
Bachelor of Science in Psychology, 2013

December 2019  
University of Arkansas

This thesis is approved for recommendation to the Graduate Council.

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## **Abstract**

Alcohol misuse and elevated social anxiety are found to be highly comorbid, and being exposed to social models consuming alcohol can increase one's consumption. Yet no research has thus far examined whether the internal experience of alcohol consumption (e.g., social anxiety reduction) can also be transmitted via social modeling. This bar-lab study examined the impact of social modeling behavioral cues of social anxiety on emerging adult drinkers. It was hypothesized that those exposed to a social model experiencing an apparent social anxiety reduction from drinking would themselves report lessened state social anxiety following a placebo drink, and that this effect would be stronger for female participants. The final sample ( $N = 39$ ) consisted of 21 men and 18 women ages 21-28 ( $M_{age} = 22$  years; 54% White [non-Hispanic]). All participants viewed a gender-matched videotaped social modeling manipulation and were randomly assigned either to a condition in which the confederate appeared socially anxious throughout the video (control) or ceased displaying social anxiety markers after consuming alcohol (treatment). State social anxiety was assessed both pre- and post-manipulation utilizing the State Social Anxiety Questionnaire (SSAQ). The social modeling manipulation was not found to impact SSAQ scores following placebo alcohol consumption. Further, gender did not moderate the effects. Across genders and conditions, there was a significant reduction in SSAQ scores post-drinking. Findings from this study suggest that future research may have to attend to additional factors if attempting to socially model social anxiety effects related to drinking. Floor effects for social anxiety in this non-clinical sample may have presented a barrier to detecting changes in state social anxiety. Additionally, the impact that preexisting alcohol expectancies and beliefs may have on this sort of research are not well understood.

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## Introduction

Alcohol consumption is a potentially dangerous activity that has been estimated to be responsible for approximately 3.8% of deaths worldwide (Rehm et al., 2009). Further, the costs incurred as a result of alcohol are estimated to be greater than 1% of gross domestic product in middle-income (e.g., Thailand) and high-income (e.g., the United States) countries (Rehm et al., 2009). In the United States, Bouchery, Harwood, Sacks, Simon, and Brewer (2011) estimated the nationwide cost of alcohol consumption in 2006 alone to be approximately \$223.5 billion. As Bouchery et al. explain, this works out to a cost of roughly \$746 per person. Further, in 2010 alone there were over 32,000 deaths from motor vehicles accidents, with alcohol accounting for a significant portion of these accidents (Blincoe, Miller, Zaloshnja, & Lawrence, 2015).

Emerging adults, particularly those attending college, may be at particular risk for alcohol-related consequences. Hingson (2010) observed notable increases in college student binge drinking, drunk driving, and alcohol-related deaths coinciding with the finding that 20% of college students in this sample met the clinical cutoff for alcohol dependence or abuse. Longitudinal research has shown that downstream consequences for college binge drinkers include increased rates of alcohol dependence or abuse 10-years later, lessened college graduation rates, fewer job opportunities, and worsened academic performance (Jennison, 2004). With these types of costs, it is critical that comprehensive and thorough research be performed to determine the ways in which emerging adults learn about how alcohol may impact them, whether that be in generally positive ways (e.g., reduced social anxiety) or negative ways (e.g., increased risk-taking). Therefore, the present study focuses on how drinking to reduce social anxiety may develop through the learning process of social modeling.

That there is some co-occurrence between unhealthy alcohol use and elevated social anxiety has been well established in the existing literature (see Kushner, Sher, & Beitman, 1990; Morris, Stewart, & Ham, 2005 for reviews). When severe, elevated levels of social anxiety may correspond with a diagnosis of social anxiety disorder. The *Diagnostic and Statistical*

*Manual of Mental Disorder--Fifth Edition* (DSM-5) defines social anxiety disorder as, “a marked, or intense, fear or anxiety of social situations in which the individual may be scrutinized by others” (American Psychiatric Association, 2013, p. 203). Those with social anxiety disorder have been noted for being more likely to use alcohol as a form of self-medication for their anxiety symptoms (see Carrigan & Randall, 2002, for a review). This is although the actual anxiety-reducing effects of alcohol use in those suffering from social anxiety disorder have not been consistently demonstrated (see Carrigan & Randall, 2002 and Battista, Stewart, & Ham, 2010, for reviews). In addition, individuals suffering from social anxiety disorder have been found to be at significantly higher risk for alcohol dependence, and this relation between social anxiety disorder and alcohol dependence was relatively unaffected even when controlling for other forms of anxiety disorders (Buckner et al., 2008).

Gender may play a role in the development of co-occurring social anxiety and alcohol use disorders. Research by Buckner and Turner (2009) indicated that social anxiety disorder in women was predictive of future development of an alcohol use disorder. This association was, however, not found for men, with men’s social anxiety being only predictive of future cannabis use. Women with comorbid social anxiety and alcohol use disorder have also been found to engage in increased avoidance (Randall, Thomas, & Thevos, 2000). This may function to maintain their socially anxious symptoms, further perpetuating any potential social anxiety to alcohol use disorder association (Hofmann, 2007). While further research is needed in this area, current findings suggest that socially anxious women (compared to socially anxious men) may be more vulnerable to developing hazardous drinking behaviors and, potentially, for that to be maintained.

Taken together, this research demonstrates the important link between social anxiety and alcohol use and dependence that might persist even when an individual experiencing elevated social anxiety is not likely to experience anxiety reduction consistently from alcohol. While such individuals might not experience the negative reinforcement of reduction in social

anxiety, an important risk factor for increased alcohol consumption, other positive reinforcers or intermittent reinforcement schedules may be at play (Farber, Khavari, & Douglass, 1980). They might, for instance, find positive reinforcement stemming from feeling more energetic, being more talkative, or enjoying sex more. Critically, they may also be learning by observing what others appear to experience when drinking (e.g., a friend appears anxious when entering a party but then appears more relaxed after having a couple drinks). Further, the role that gender plays in the relationship between social anxiety and alcohol-related problems necessitates further understanding, as the mechanisms underlying this association are not fully understood (Morris, Stewart, & Ham, 2005).

### **Social Modeling**

**Modeling Alcohol Consumption Behaviors.** Comorbidity between problem alcohol use and social anxiety may be partly explained by social modeling in social learning theory. Alcohol consumption is a learned behavior. Learning via the example of others, or through social modeling, is one critical aspect of the human learning process (Bandura, 1977). Quigley and Lorraine (1999) conducted a meta-analysis on the social modeling of a confederate's alcohol consumption on amount of alcohol the participant consumed, blood alcohol concentration, number of sips taken, and volume per sip, concluding that the impact of social modeling of increased drink intake was highly associated to increases in all aforementioned outcome variables. This research included studies investigating men only, women only, and both genders, and while some studies included in their analyses gender-matched participants to social models, others did not. Additional research in this domain has found notable effects of social modeling on drinking behavior using same-sex models specifically. Larsen, Engels, Granic, and Overbeek (2009) demonstrated that, when alcohol craving was controlled for, participants who were exposed to a same-sex heavy-drinking confederate drank significantly more than those participants exposed to light-drinking and no-drinking confederates. Further research has found a similar effect with heavy social drinkers, with the addition that those who

were high in need for social approval were additionally vulnerable to the effects of social modeling alcohol consumption (Caudill & Kong, 2001). While these studies included relatively diverse populations in their samples, a great deal of attention has more recently been paid to social modeling alcohol consumption in college-specific samples.

Several studies have delved deeper into the college population and suggest that social modeling of alcohol consumption is an important factor in understanding college drinking (Abar & Maggs, 2010; Read, Wood, & Capone, 2005; Talbot, Moore, & Usdan, 2012). This population of largely emerging adults are highly likely to be proximal to many potential models of heavy drinking, be it in the form of large parties or in other more intimate settings. Additionally, those leaving home during this crucial developmental period may encounter decreased parental modeling, a factor identified as protective of heavy episodic drinking (White et al., 2006). The vulnerability of this demographic to social modeling of increased drinking may therefore place them at particular risk of developing an alcohol use disorder.

It is important to consider, however, that not all emerging adults will find themselves in the same contexts or form the same connections with peers who engage in the same behaviors. Selection effects (i.e., that drinkers may choose friends who also drink or drink heavily) also play a crucial role in predicting alcohol use and alcohol-related problems. Previous research has found that emerging adult drinkers who select into heavy drinking peer groups drink more heavily themselves, especially if they have moved away from home for college (White, Fleming, Kim, Catalano, & McMorris, 2008). Preston and Goodfellow (2006) demonstrated that drinking frequency was positively correlated with having peers who report getting drunk at minimum once per week in both adolescents and adults. Emerging adults with more “drinking buddies” have been shown to have higher levels of perceived approval of drinking, which correlated with increases in alcohol use and alcohol-related problems (Lau-Barraco & Collins, 2011). Further, for those transitioning out of high school and into emerging adulthood, having fewer friends who



use alcohol can serve as a protective factor (White et al., 2008). It is thereby clear that the peer group that one is apart of will have a significant impact on one's alcohol use.

However, while peer networks undoubtedly play an important role in determining individual drinking behaviors, the previously discussed body of literature utilizing confederate social models to modulate participant drinking suggests that proximal modeling performed by strangers can still have a significant, at least short-term, impact. While it does not necessarily follow that therefore anything beyond drinking behaviors themselves can be impacted using such proximal models, it is possible that there is more yet to be empirically investigated. The perceived effects on oneself resulting from drinking, for example, may hypothetically be able to be transmitted through social modeling, an idea that will be revisited shortly.

**Modeling Anxiety-Related Responses.** Alcohol outcome expectancies (AOEs; i.e., what one believes will result from consuming alcohol) are a well-established factor associated with drinking behavior (Fromme, Stroot, & Kaplan, 1993). Further, these AOEs may mediate the relationship between social modeling and elevated alcohol consumption (Wood et al., 2001). While there is presently no research linking social modeling to the subjective response to alcohol intoxication, past research has demonstrated that social modeling of anxious or fearful responses to cues could alter children's responses to those cues as well. For example, children's self-reported anxiety in response to certain stress cues are increased by parental social modeling of anxious behavior (Burstein & Ginsburg, 2010). Additionally, escape and avoidance responses to stress cues in children has been found to be increased by parental modeling of such responses (Bunaciu et al., 2014). It is possible that the subjective response to alcohol consumption may be similarly transmitted to individuals via social models, either through expectancies or directly.

**Modeling Medical Symptoms.** While there is not presently research examining alcohol and social anxiety reduction via social modeling, there is research focused on social learning related to medication effects and to psychogenic illness symptoms that informs this effect

indirectly. In participants ingesting a placebo beta-blocker medication, the influence of seeing a female confederate exhibit side-effect symptoms has been shown to increase reports of female participants' own symptoms compared to a control condition in which the female confederate reported no side effects (Faasse, Grey, Jordan, Garland, & Petrie, 2015). Research by Colloca and Benedetti (2009) further found that socially modeling analgesia effects from a placebo was significantly more powerful than simply telling the participants of the placebo's supposed analgesic effects. An impact of social modeling has also been demonstrated in research examining social transmission of psychogenic illness (illness symptoms without any known biological explanation) in which those who were exposed to a socially modeled psychogenic illness group reported experiencing significantly more symptoms themselves than those randomly assigned to a control condition in which participants neither took a placebo pill nor witnessed any socially-modeled symptoms (Broderick, Kaplan-Liss, & Bass, 2011).

### **Gender and Social Modeling**

Gender may play a role in the effects of social modelling on the subjective experience of substance use (i.e., how one "feels" when they are under the influence of a substance). For example, Mazzoni, Foan, Hyland, and Kirsch (2010) found that both men and women who observed socially-modeled symptoms displayed more symptoms themselves (e.g., self-reported feelings of nausea) compared to those in a control condition who did not witness the modeling of symptoms as a result of the inhalation of a placebo substance. However, they also found that when the sex of the confederate and participant were matched, there was a stronger effect of social modeling and that women tended to report more symptoms compared to men. Faasse et al. (2015) reported that gender significantly moderated the effect of social modeling of beta-blocker side effects on reported side effect symptoms. Specifically, women reported twice as many side effect symptoms in the social modeling of side effects condition compared to the control condition, while there were no differences between the conditions for men.

Other similar studies have only utilized women as participants, leaving the field uncertain as to whether results would replicate in a sample of men (Colloca & Benedetti, 2009; Hunter, Siess, & Colloca, 2014). However, Broderick et al. (2011) found no significant gender influence in their study on psychogenic illness and its ability to be socially modeled. Additionally, while there was gender moderation found as regards social modeling on reported side effects in Faasse et al. (2015), there was also a significant effect of social modeling on blood pressure effects which did not vary by gender, adding further confusion to the impact of gender on social modeling of drug effects.

Studies investigating the role of socialization more broadly on drinking behaviors may help clarify the importance of gender. More recent research on peer influence and substance use found that the degree to which adolescent girls' friends engage in smoking, drinking, and delinquent behaviors predicted increases in their own alcohol consumption more strongly than it did for boys (Dick et al., 2007). Interestingly, this effect was even greater when more of the adolescents' friends were of the opposite sex for both boys and girls. Further, while same-sex friends drinking has been shown to correlate with increased adolescent drinking, female friends who drank more did not impact their male friends' drinking (Gaughan, 2006). Yet, male friends drinking behavior did correlate with increases in their female friends' drinking. These findings add complexity to the question of gender and social modeling, suggesting that gender-matching may be more impactful for men where alcohol is involved. However, peer influence as considered by Dick and colleagues (2007) consisted of naturally occurring social groups, not proximal social models. While the literature does not provide clear-cut answers in this regard, it speaks to the complex relationship that gender has on peer influence.

Shifting to a women-only college sample, Testa, Kearns-Bodkin, and Livingston (2009) found that several peer influence factors (increased social pressure to drink, increased perceived peer drinking approval, and heavier drinking peers) mediated the relationship between precollege intentions related to drinking and heavy episodic drinking in college. Results

of this study suggest that while selection of college peers was an important factor, the socialization related to exposure to heavier drinking peer groups was critical in predicting hazardous drinking behavior. Ultimately, the role of gender in the present study was unable to be precisely predicted based on past research, as gender effects were quite diverse. However, most of the literature seems to suggest that gender is likely to play some role and that social modeling may be more powerful in emerging adult women than men.

### **Current Study**

Researchers have examined the impact of social modeling and alcohol use, as well as investigating how feelings and symptoms brought on by substances can be socially modeled with a placebo (i.e., free from any actual physiological effects of the substance), but no known published research had pulled these two concepts together at the time of this study. Further, the social modeling of social anxiety reduction may be an important factor in motivating certain individuals to drink for the purpose of reducing subjective feelings of social anxiety. Therefore, in the present study, I investigated the effect of social modeling feelings of social anxiety reduction as the result of consuming alcohol on participants' own feelings of social anxiety reduction as the result of consuming a placebo alcoholic beverage. The central hypothesis was that participants viewing the confederate in the modeled social anxiety reduction (i.e., treatment) condition would report lower levels of social anxiety following placebo beverage consumption as compared to the control group. It was further hypothesized that those in the treatment condition would be more willing to agree to speak on camera about their experiences with alcohol. This served as a behavioral measure of social anxiety. The general efficacy of placebo manipulations in alcohol research, particularly for low doses of alcohol, has been well established (Schlauch et al., 2010). Further, considering findings by Mazzone et al., (2010), the participants viewed videos with gender-matched confederates to maximize the effect of our social modeling. The present study also examined whether participant gender moderated the association between alcohol-induced social anxiety symptom reduction modeling condition and social anxiety reduction

following consuming a placebo beverage. While one study has shown no moderating effect of gender on the effect of social modeling on reported symptoms from psychogenic illness (Broderick et al., 2011), another has found moderating effects of side-effect modeling and reported medication side effects (Faase et al., 2015). Other studies examining social modeling on symptoms did not include men in their sample (Colloca & Benedetti, 2009; Hunter, Siess, & Colloca, 2014). Given evidence that women may be more impacted by social modeling of subjective response (Faase et al., 2015), it was hypothesized that the impact of social modeling would be stronger for women than for men.

## **Method**

### **Participants**

Fifty-one participants (30 men and 21 women) were recruited from the University of Arkansas psychology subject pool and through advertising on the University newswire. Of those recruited, 58.8% were White (non-Hispanic), 15.7% were Hispanic, 11.8% were Black, 5.9% were Asian, 2.0% were American Indian, and 5.9% identified as any other ethnicity. Nearly all participants (94.1%) were active students. The mean age was 22.4 years-old ( $SD = 1.63$ ). See Table 1 for the demographic summary of the recruited sample. Participation in the study was limited to active drinkers between 21 to 28 years-old, as well as to those without any allergies to ingredients used in the study, alcohol-contraindicated health conditions (including alcohol dependence), or regularly taking any medications for which alcohol is contraindicated. Participants were additionally required to abstain from alcohol for the 24 hours prior to the time of the study and to not eat or drink anything other than water within 4 hours of their appointment. All participants completed a phone prescreener to determine eligibility prior to being scheduled for the in-person component of the study. The study was described to potential participants as a taste test to evaluate a new alcoholic mixed drink.

While a total of 51 participants completed the study, 128 persons provided their contact information, thereby expressing potential interest in taking part in the study. Of those 128

persons, a total of 77 were scheduled to come into the lab for the in-person components of the study. Twenty-six of those 77 scheduled participants screened-out, cancelled without rescheduling, or no-showed without rescheduling. Twenty-one individuals failed to meet preliminary screening criteria over the phone and were informed they were not eligible. An additional 31 of those who provided their information were unable to be successfully contacted by phone to conduct the initial phone screening.

Thirty-nine of the 51 participants who completed the study were included in the final data analytic sample. As described in the Results section, 11 participants were excluded from analyses due to a lack of believability of the cover story and one participant was removed as an extreme outlier based on their responses on measures of anxiety and depression. See Table 2 for a demographic summary of the final sample. The sample had a mean age of 22.03 years-old ( $SD = 1.20$ ) and was 46.2% women, and 97.4% were active students. Ethnic identity of this final sample was 53.8% White (non-Hispanic), 20.5% Hispanic, 12.8% Black, 5.1% Asian, 2.6% American Indian, and 5.1% Other.

**Power Analysis.** Effect size for the main effect of social modeling was estimated based on research investigating the impact of social modeling on psychogenic illness symptom reporting (Broderick et al., 2011). While taking effect size from a study involving social modeling of placebo induced experiences utilizing alcohol would have been ideal, no such research was found in the literature. The modeling effect size from Broderick et al. (2011) ( $d = 0.74$ ) was used, after converting it to  $f = 0.37$ , with G\*Power (Version 3.1.9.2; IBM) for main effect power analysis. Power analysis for an *a priori* ANOVA (fixed effects, special, main effects, and interactions) was computed ( $f = 0.37$ ;  $\alpha = .05$ ; input power = .80; numerator  $df = 1$ ; groups = 2). Results of this analysis indicated that a sample size of 60 would be required to detect a main effect of social modeling.

As gender was expected to be a moderating factor in the present study, however, we also wanted to see what effect size would be sufficient to power this interaction effect. Faasse et

al. (2015), in a study investigating the effect of social modeling of medication side-effects, provided an effect size (partial eta-squared = 0.12) for an interaction effect between social modeling and sex. When converted for power analysis in G\*Power,  $f = 0.37$ . Power analysis for an *a priori* ANOVA (fixed effects, special, main effects, and interactions) was computed ( $f = 0.37$ ;  $\alpha = .05$ ; input power = .80; numerator df = 1; groups = 4). Results of this power analysis, again, suggested that a sample size of 60 was indicated. As such the final sample of 39 was not sufficiently powered to detect the hypothesized main effect or interaction effect.

## Measures and Stimuli

### *Baseline measures*

**Demographics.** A variety of demographics were gathered, including gender identity, age, student status, and race and ethnicity. In addition, several demographics questions were asked to increase believability that this study was focused on marketing (e.g., “Have you ever taken any courses on marketing or advertising?”). See Appendix D.

**Typical drinking.** The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) is a 10-item measure used to assess drinking problem severity during telephone prescreening. This measure allowed us to exclude those at higher risk for the development of an alcohol-use disorder. Further, the AUDIT was used to describe the typical drinking behavior of the sample. Scores were calculated by summing participant responses to all 10 items, and a score range from 0 to 40 was possible. The psychometric properties of the AUDIT in assessing drinking behavior have been well-established (de Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009). Chronbach’s alpha was .516 for the present sample. See Appendix B.

**State-based social anxiety.** The State Social Anxiety Questionnaire (SSAQ; Kashdan & Steger, 2006) was used to measure both pre- and post-drink consumption state-based social anxiety. Participants were asked to rate how much they had recently been experiencing various symptoms on a 1 (*Very Slightly/Not at all*) to 5 (*Extremely*) scale (e.g., “I was worried what other people thoughts of me”). Scores on this 7-item measure range from a minimum of 7 to a

maximum of 35. A score was created for each participant in the present study by calculating the mean of their responses to the 7 items. This was utilized as the primary dependent variable of the study in order to detect changes in state social anxiety as a presumed result of the video manipulation.

The SSAQ has been found to have both adequate reliability based upon hierarchical level linear modeling ( $r = .91$ ) and strong convergent validity ( $r = .56$ ) when correlated with the Social Interaction Anxiety Scale (Mattick & Clarke, 1998), a trait-based measure of social anxiety (Kashdan & Steger, 2006). In the present sample, Chronbach's alpha was .799 for the pre-drink measure and .839 for the post-drink measure.

Questions from this measure were interspersed between questions from the 65-item Profile of Mood States (POMS; McNair et al., 1971) in order to reduce face validity and increase the believability of the cover story, giving participants the impression that we were interested in more generalized "personality" than anxiety specifically. A total of 21 items were randomly selected from the POMS for this purpose. Participants rated how much they recently experienced various personality-related experiences (e.g., "I felt spiteful") using the same scale as above for the SSAQ. See Appendix F.

**Social anxiety.** The Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998) and the Social Phobia Scale (SPS; Mattick & Clarke, 1998) were companion measures used to assess background social anxiety. Participants were tasked with rating how much various statements were characteristic of them on a 0 (*Not at all*) to 4 (*Extremely*) scale. The 19-item SIAS focuses on social interactions (e.g., "I am at ease meeting people at parties"), while the 20-item SPS focuses on concerns about anxiety being observable by others (e.g., "I fear I may blush when I am with others"). The psychometric properties for these measures have been found to be strong (Osman et al., 1998; Mattick & Clarke, 1998). See Appendices I and K.

**Drinking motives.** The Drinking Motives Questionnaire, Revised (DMQ-R; Cooper, 1994) was included to ensure that the sample did not significantly differ between conditions in



terms of their motivations for consuming alcohol in general. Past research has found support for drinking motives as being not only a potential mediator of an alcohol expectancy to consumption process but also correlated with amounts of alcohol consumption (Kuntsche et al., 2007; Engels et al., 2005). Participants rated on a 1 (*Almost Never/Never*) to 5 (*Almost Always/Always*) scale the degree to which they would say they drink for various reasons (e.g., “Because it makes social gatherings more fun”). This 20-item measure was scored by summing total scores for each of its four motive domains (i.e., enhancement, coping, social, and conformity), and each subscale therefore has a potential score range from 5 to 25. This measure has been found to possess strong psychometrics (Cooper, 1994). See Appendix J.

**Alcohol outcome expectancies.** The Comprehensive Effects of Alcohol Questionnaire (CEOA; Fromme et al., 1993) was used to assess baseline differences in what participants would expect to happen to them as a result of consuming alcohol. Participants would rate (on a 1 [*Disagree*] to 4 [*Agree*] scale) how much they would expect various outcomes to occur for them if they were to drink alcohol (e.g., “I would feel unafraid”). This 38-item measure was scored by computing the mean for items that Fromme and colleagues (1993) identified as loading on the positive factor (e.g., “I would act sociable”) and items loading on the negative factor (e.g., “I would feel dizzy”) separately. A minimum score of 1 and maximum score of 4 is possible for either positive or negative expectancies. Psychometrics evaluations of this measure have shown it to have strong validity and reliability (Fromme et al., 1993; Ham, Stewart, Norton, & Hope, 2005). See Appendix L.

**Depression.** The Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001) was used to check for baseline differences between-groups in depression levels. It was believed that this was particularly important to include due to the comorbidity between social anxiety and depression in emerging adults (Stein et al., 2001). This 9-item measure of depression had participants rate the degree to which they’ve been bothered by various problems (e.g., “Feeling down, depressed, or hopeless”) on a 0 (*Not at all*) to 3 (*Nearly every day*) scale. Scoring

consisted of summing all 9 items, and the possible range was from 0 to 27. Titov et al. (2011) provided evidence that this measure has strong psychometrics properties and it was found to compare well to another leading measure of depression, the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). See Appendix H.

**Decoy questionnaires.** Fourteen marketing-focused questions were asked following demographics in order to further reinforce the cover story. These included qualitative questions (e.g., “Where do you usually go when you’re looking to purchase alcoholic beverages?”) and quantitative questions (e.g., “I tend to order the same alcoholic beverage frequently” rated from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*)). The overarching intention with these items was create the perception that the study was focused on understanding them as consumers of alcoholic beverages, investigating their buying habits, and where they do their alcohol-related shopping. See Appendix E.

The Personal Attributes Questionnaire (Spence, Helmreich, & Stapp, 1973) was also included to increase the believability that the study focused on how personality is related to drink preferences. This 24-item measure, while not used in analyses, had participants rate themselves on a spectrum of global personality factors (e.g., rating oneself from A (1) [*Not at all aggressive*] to E (5) [*Very aggressive*]). See Appendix G.

### *Manipulation*

**Videotaped Interview Stimulus.** Four videotaped interviews were created for the present study: (a) treatment condition/female confederate; (b) treatment condition male confederate; (c) control condition/female confederate; and (d) control condition/male confederate. For both treatment and control conditions, a casually dressed college student confederate was seen engaging in a one-on-one interview (interviewer offscreen), answering questions about an alcoholic drink pre- and post-drinking. Virtually identical videos were filmed with either a man or a women confederate acting as though they were a participant in the study interview. Situations and events occurring in the videos intended to portray social anxiety were

based, in part, on items from the SSAQ. Several observable behavioral cues correlated with social anxiety were selected in order to ensure that the confederate was able to consistently and effectively portray a socially anxious person. Based upon a combination of a review of the empirical literature and what a confederate could realistically portray in a roughly five-minute video, the following behavioral markers were selected for the video scripts: gaze avoidance, shortened speech, monotone speech, and awkward pauses in conversation (Fydrich, Chambless, Perry, Buergener, & Beazley, 1998; Moukheiber et al., 2010; Pinto-Gouveia, Cunha, & Céio Salvador, 2003; Schneier, Rodebaugh, Blanco, Lewin, & Liebowitz, 2011; Van Dam-Baggen & Kraaimaat, 1999; Weeks, Howell, & Goldin, 2013). See Appendix N for the scripts, which includes indicators of which social anxiety aspects are depicted in the script.

The confederate was trained to exhibit social anxiety behavioral cues in the pre-drink stage for both conditions. However, in the treatment condition, the confederate no longer acted in an anxious manner in the post-drink part of the video. For the control condition, the confederate continued displaying social anxiety cues throughout the entirety of the video (i.e., both pre- and post-drink consumption). These questions mirrored those that actual participants in the study were verbally asked after watching the video. The drink used in the study was prominently placed in the framing of the video, such that participants would see that it matched the color and style of the drink they themselves were being served. Based on previous research by Mazzoni and colleagues (2010), nearly identical videos were filmed separately with a male and female actor, such that the videos could be gender-matched.

In order to attempt to validate the efficacy of these videos, a pilot study was conducted in a sample of 118 volunteers ages 21 to 28 (52% women;  $M_{age} = 25.1$ ,  $SD = 2.13$  recruited through Mechanical Turk (MTurk) to complete an online study on Qualtrics. Participants responded to a questionnaire asking them to rate the participant they had seen in the post-consumption section of the video using the same seven symptoms of social anxiety taken from the SSAQ (Kashdan & Steger, 2006) that were used to inform the creation of the

aforementioned scripts. It was hypothesized that those exposed to the treatment condition, wherein the videotaped mock participant was trained to behave less socially anxious after consuming their drink, would rate the confederate as less anxious on these modified items compared to those participants in the control condition. The total score for the modified SSAQ items was significantly lower for participants randomly assigned to the treatment condition ( $M = 13.51$ ,  $SD = 6.55$ ) compared to those assigned to the control condition ( $M = 27.47$ ,  $SD = 6.89$ ), thereby supporting the hypothesis,  $t(1, 112) = 11.09$ ,  $p < .001$ .

Participants in the pilot study reported high levels of agreement with a paragraph describing the cover story that the video showed an interview regarding drink preferences in which an individual answered questions before and after consuming an alcoholic drink being tested ( $M = 4.31$ ,  $SD = .82$  on a 1 [*That paragraph does not at all describe this study*] to 5 [*That paragraph describes the study perfectly*] scale. These ratings did not differ by condition,  $t(1, 96) = -1.32$ ,  $p = .19$ . Further, ratings of the confederate across conditions suggest that they were realistic and believable. Using a 5-point scale (1 = *Very Slightly/Not at all*; 3 = *Moderately*; 5 = *Extremely* scale), participants rated how similar the way the participant (i.e., the confederate in the video) acted is to how most people would behave in this interview ( $M = 2.77$ ,  $SD = 1.12$ ), the degree to which “the participant is similar to myself” ( $M = 2.45$ ,  $SD = 1.20$ ), and the degree to which “the participant is similar to people that I know” ( $M = 2.82$ ,  $SD = 1.09$ ). While responses to these questions qualitatively land roughly in the “Moderately” similar category, it is believed that it would be unreasonable to anticipate them being significantly higher. It is unlikely that participants in this pilot study would find any person selected at random to be “extremely” like themselves or those they know, if only due to the diversity of individual differences people possess. It was thereby concluded that the videos had met an acceptable level of believability.

#### *Post-Manipulation Measures*

**Qualitative interview.** A 17-item verbal qualitative interview was developed asking participants about their general thoughts on the drink. The purpose of these qualitative interview

questions was to facilitate showing the participant a video of a “previous participant” (i.e., confederate actor/actress) and to thereby enable us to administer the social modeling manipulation. The questions were an exact match for the questions participants saw being asked in the video manipulation. This fit with the cover story of the study that it was centered around people’s thoughts and opinions regarding a new mixed drink. Questions centered around both direct evaluations of the drink (e.g., “How bitter does the drink look?”) to more person-oriented evaluations (e.g., “How do you feel towards other people now that you’ve finished the drink?”). See Appendix O.

**State-based social anxiety.** The SSAQ was again utilized to assess state-based social anxiety. The only change from when the measure was first administered at baseline, was that it now asked them to rate how they were feeling “...since you finished your drink.” As in the pre-drink measurement, questions from the POMS were interspersed throughout in the same fashion. See Appendix F.

**Behavioral social anxiety measure.** A verbal question regarding speaking on videotape, with the intended audience being incoming college freshman, about the participant’s experiences with alcohol served as a behavioral intention measure of social anxiety. This novel measure was answered with either a “yes” or “no,” followed by the participant being given the opportunity to provide a qualitative response as to why they chose to answer yes or no. It was anticipated that the task was novel enough such that it does not prime any pre-conditioned response in the participant. Previous research has shown a relationship between a public speaking challenge and increased alcohol consumption (Abrams, Kushner, Medina, & Voight, 2002). Himle et al. (1999) found that, in those with social anxiety disorder, merely believing that they had consumed alcohol reduced their reported feelings of anxiety when asked to deliver two speeches. Due to this measure’s novel design and lack of previous validation, it was used only for exploratory purposes. See Appendix P.

**Debriefing/manipulation check measure.** A debriefing measure was developed with a combination of both quantitative (e.g., “I believed the video I was shown was an unscripted interaction” rated from 1 “Strong Disagree” to 5 “Strongly Agree”) and qualitative items (e.g., “What if anything made you question that this study was really about what we initially told you?”). Those who indicated that they “Strongly Disagree” when asked if they believed that the video-taped interview they watched was shown solely for instructional purposes (as they had been told prior) were excluded from analyses. This item was chosen to gauge believability because it correlated well with qualitative data gathered regarding study the believability of the cover story and it had lessened face validity compared to other believability items included in the study (e.g., “I believed that the video I was shown was an unscripted interaction”). A total of 18 manipulation and deception check, as well as 8 debriefing questions, were included. The purpose of these measures was to gauge the degree to which participants believed the larger cover story and that the video-taped interview was a candid, “real” interview. See Appendices Q and R.

## **Procedures**

After receiving participants’ contact information via an online form that they filled-in, they were briefly prescreened over the phone to determine eligibility. Participants were asked for their current age and birthdate to ensure that they were of legal drinking age, as well as some basic health-related questions to ensure against any harm. These questions included present drinker status, medications, health problems (including alcoholism), and allergic reactions to any ingredients used in the study. Eligible participants were then scheduled for a different date to come into the lab in-person and participate in the study itself.

Participants met a researcher at their scheduled time in the psychology building’s designated research participant waiting area. They were led to a small private lab space, wherein they took part in the in-person screener. This screening involved not only verifying that the answers they provided on the phone prescreening were up-to-date, but participants

additionally submitted a breath alcohol content (BrAC) reading using a handheld Intoximeter Alco-Sensor FST® breathalyzer to verify a BrAC = .000, showed their photo ID to verify their age, and women participants were escorted to the restroom to take a pregnancy test in private to verify that they were not pregnant.

Eligible participants then were provided verbally with informed consent information, in addition to signing two copies of an informed consent document (one for their records and one the researcher kept). Participants then answered questionnaires on a laptop computer, including questions about their demographics, alcohol-related buying habits, and current affective state. Following background measures, participants played the videogame *Tetris* on the laptop for two minutes. This served as a distractor task.

The study was a 2 (gender) x 2 (video modeling condition: social anxiety reduction or no social anxiety reduction) between-subjects design. Participants were instructed to watch a randomly-assigned, gender-matched videotaped interview (i.e., the social modeling manipulation). This task was described to them as being for instructional purposes regarding how people commonly answer the questions on the interview only (See Appendix N). Balanced random assignment to conditions for men and women was handled by settings within Qualtrics. After viewing the videotaped interview, the researcher then conducted the pre-drink portion of the interview (i.e., the same interview the participant had seen conducted in the videotape). As to exactly match the videotape, the researcher prepared and served the mixed drink to the participant, instructing them to drink it evenly over a ten-minute period during which they would sit alone.

The drink mix was designed to mimic the taste of alcohol as best as possible, without a meaningful increase in participant BrAC. It contained 8oz of tonic water, 2oz of *Sprite*, and 2oz of cranberry juice. A plastic lime bottle filled with vodka served to add a small floater of actual alcohol on top of the beverage, as has been shown effective in previous research (Ham, et al., 2011). In the present study, participants were split with regards to how alcoholic they believed

the drink to be, with 22 (56.4%) stating it had “Almost no alcohol/No alcohol” and 17 (43.6%) indicating it had “Just the right strength of alcohol.”

After finishing the video, participants were asked to indicate the number of plastic ice cubes (if any) that they would like in their drink. Plastic ice cubes were used to avoid any “watering down” of the drink. The plastic ice cubes, if requested, and the premixed drink were then poured into a glass. Immediately after pouring, the researcher would then add a small squirt of vodka from a plastic lime as a floater on top of the beverage. The researcher would ask the participant to drink the entire drink evenly over a 10-minute period and then inform the participant that they would leave the room during the 10-minute drinking period. After this 10-minute period of drinking finished, the researcher collected the participant’s glass and all the other materials, putting them away into storage containers.

The experimenter then asked the participant the same questions as those that they saw on the video. Participants were verbally informed at this stage that they were not expected to provide the same responses to the questions as they had seen the confederate provide in the video they watched, to reinforce the notion that the video they watched had only been for instructional purposes. This qualitative verbal interview, while not providing data intended for statistical analysis in this study, was intended to both reinforce the cover story, as well as potentially provide qualitative data that may be used to inform future research directions.

The participant then completed the same post-drink questions from the SSAQ and the POMS. Immediately following this, they were then asked whether they would be willing to speak on camera about their experiences with alcohol in a video that may be used to show incoming freshman college students what real people’s experience with alcohol are. They were prompted to provide a yes or no response, and then they were asked to provide their reasoning for choosing to agree or disagree to take part. It was stated to the participant that this would not entail them staying in the lab longer than they otherwise might if they choose to take part, as it would be filmed while they were asked to wait in the lab during a detoxification period.



Next, participants filled-in measures intended to serve as a manipulation check. This included both quantitative questions (e.g., asked to rate the degree to which they believed the video was shown to them only for instructional purposes) and qualitative questions (e.g., “What if anything made you question whether the drink had more than trace amounts of alcohol?”). A final free-response qualitative question gave participants the opportunity to provide any other feedback.

Debriefing immediately followed, with a paper copy of the IRB-approved debriefing document provided to all participants. In addition to this document being provided, participants were verbally debriefed. During this time, they were informed that the study was designed to investigate how seeing a person on video react to consuming alcohol can impact one’s own feeling of anxiety following drinking, rather than focused on their thoughts about the drink itself. They were additionally told that they had only consumed a small amount of alcohol and therefore would not actually be required to wait for a detox period in the lab, and they were notified that the question about speaking on video about their experiences with alcohol had been asked to gauge how comfortable they were feeling but that it would not actually take place.

Lastly, participants were provided the opportunity to ask questions or provide feedback to the researcher. Participants were then either provided with monetary compensation (\$10;  $n = 25$ ) or class-related research credit ( $n = 26$ ). Debriefing materials provided them with contact information of the primary researcher and his faculty adviser, as well as mental health-related resources.

### **Analytic Approach**

First, data were examined for violations of the assumptions of the statistical analyses. Next, the effectiveness of random assignment was tested prior to data analyses using independent samples *t*-tests and Chi-Square tests in order to ensure that there were no significant differences in demographics, social anxiety, depression, education/marketing-related classes taken, alcohol purchasing habits/preferences, alcohol expectancies, or typical drinking

behavior between conditions. In addition, a 2 x 2 Analysis of Variance (ANOVA) was used to assess the impact of gender and condition on pre-manipulation state social anxiety.

It was hypothesized that participants exposed to the treatment condition (i.e., in which the videotaped confederate is visibly less socially anxious after consuming alcohol) vs. the control condition (i.e., in which said confederate remained visibly socially anxious post-drinking) would themselves report lessened levels of state social anxiety, and that this effect would be more impactful for women than men. The primary analysis was a 2 (condition: treatment vs. control) x 2 (gender: male vs. female) Analysis of Covariance (ANCOVA) with post-manipulation state social anxiety as the dependent variable, covarying for pre-manipulation state social anxiety, to test the proposed main effects and interactions. A *t-test* to investigate the change in state social anxiety from baseline to post-manipulation was also planned. This test was intended to probe whether state social anxiety fluctuated for participants due to factors other than the manipulation (e.g., due to participants “warming up” to the researcher).

Additionally, it was hypothesized that those in the treatment condition would be more likely to agree to speak on camera about their experiences with alcohol compared to those in the control condition. To test this hypothesis, a Chi-Square was performed with condition as the independent variable and the behavioral intention measure of whether the participant will agree to speak on camera (yes versus no) as the dependent variable.

## **Results**

### **Preliminary analyses**

Analyses were conducted using a final sample of 39 participants. Eleven participants were excluded from analyses due to their responses suggesting a high likelihood of disbelieving the cover story of the study. An additional participant was removed from analyses as an extreme outlier due to being 3 – 4 *SDs* above the mean for baseline state social anxiety and general social anxiety. Upon removing the outlier, all variable skew and kurtosis values were

less than 2.0. See Tables 1 and 2 for demographic summaries for both the total and final analyzed samples.

There were no differences observed between conditions on demographic variables or background measures. As shown in Tables 3 and 4, all *t*-tests and Chi-Squared tests were non-significant. A 2 x 2 ANOVA analysis showed no evidence for pre-manipulation SSAQ score differences by gender ( $M_{\text{women}} = 1.89$ ,  $SD = .65$ ;  $M_{\text{men}} = 1.61$ ,  $SD = .60$ ;  $F(1,34) = 2.01$ ,  $p = .165$ ) or condition to which they would be assigned later in the study ( $M_{\text{control}} = 1.81$ ,  $SD = .62$ ;  $M_{\text{treatment}} = 1.68$ ,  $SD = .65$ ;  $F(1,34) = .57$ ,  $p = .454$ ), nor for the interaction term,  $F(1,34) = 1.07$ ,  $p = .307$ .

### Primary analyses

A 2 x 2 ANCOVA with pre-manipulation state social anxiety scores as the covariate resulted in non-significant main effects and interactions. Condition did not significantly predict post-manipulation SSAQ scores ( $M_{\text{control}} = 1.21$ ,  $SE = .07$ ;  $M_{\text{treatment}} = 1.25$ ,  $SE = .07$ ;  $F(1,33) = .18$ ,  $p = .672$ ;  $\eta_p^2 = .005$ ), nor did gender ( $M_{\text{women}} = 1.24$ ,  $SE = .07$ ;  $M_{\text{men}} = 1.22$ ,  $SE = .07$ ;  $F(1,33) = .05$ ,  $p = .829$ ;  $\eta_p^2 = .001$ ). There was not a significant gender by condition interaction,  $F(1,33) = .23$ ,  $p = .635$ ,  $\eta_p^2 = .007$ . See Table 5 for means and standard deviations by condition and gender. When conducting the 2 x 2 ANOVA without covarying for pre-manipulation SSAQ scores, results were similar: effects of condition ( $M_{\text{control}} = 1.23$ ,  $SD = .39$ ;  $M_{\text{treatment}} = 1.23$ ,  $SD = .34$ ;  $F(1,34) = .003$ ,  $p = .960$ ;  $\eta_p^2 < .001$ ), gender ( $M_{\text{women}} = 1.29$ ,  $SD = .41$ ;  $M_{\text{men}} = 1.17$ ,  $SD = .30$ ;  $F(1,34) = .94$ ,  $p = .340$ ;  $\eta_p^2 = .027$ ), and the interaction,  $F(1,34) = .96$ ,  $p = .333$ ;  $\eta_p^2 = .028$ , on post-manipulation SSAQ scores were non-significant. See Table 6 for means and standard deviations by condition and gender.

Results of a dependent-samples *t*-test probing simple effect differences (regardless of genders and conditions) indicated a significant decrease in mean SSAQ scores post-manipulation ( $M = 1.23$ ,  $SD = .35$ ) vs. pre manipulation ( $M = 1.75$ ,  $SD = .62$ ),  $t = 6.35$ ,  $p < .001$ .

As gender moderation was not found, a Chi-Square test of the impact of condition on behavioral intent ("yes" versus "no") to speak on camera about experiences with alcohol was

conducted. Results were approaching significance for this analysis (Pearson Chi-Square = 3.80,  $df = 1$ ,  $p = .051$ ). However, results appear to be in the opposite direction of those hypothesized. For those in the control condition, 13 (68.4%) participants (vs. 6) agreed to speak, while 7 (36.8%) participants (vs. 12) agreed to speak in the treatment condition.

### **Discussion**

The importance of social modeling in emerging adult alcohol consumption is well established by the experimental literature (Abar & Maggs, 2010; Read, Wood, & Capone, 2005; Talbot, Moore, & Usdan, 2012). Considering the vast opportunities that emerging adulthood and its often associated increased independence affords emerging adults to find themselves in contexts in which heavy drinking may be modeled (e.g., parties), it is critical that further investigation into social modeling related to alcohol in this age group occurs. However, while studies such as those previously indicated have shown social modeling to be a risk factor for increased drinking in emerging adult populations, little is known about other related factors that may be transmitted via social modeling. It is known that children's anxiety responses to feared stimuli are increased based on social modeling of anxiety or fearful cues (Bunaciu et al., 2004; Burstein & Ginsburg, 2010). Further, pharmaceutical research has successfully socially modeled medication side-effect responses to placebo medications using confederate actors (Colloca & Benedetti, 2009; Faasse, et al., 2015; Mazzon et al., 2010). A similar effect of social modeling has been shown in research by Broderick, Kaplan-Liss, and Bass (2011) utilizing psychogenic illness rather than medication side-effects. Thus, there is evidence to suggest that social modeling of alcohol consumption is possible in a laboratory setting, that internal responses to stimuli can be socially modeled, and that medication side-effects (and feelings of illness) can be socially modeled using placebo alone. However, no research had yet brought these things together.

The present study investigated the impact of social modeling of social anxiety reduction from drinking a placebo alcoholic beverage on emerging adult active drinkers. Participants were

randomly assigned to a treatment condition in which they were exposed to a gender-matched videotaped confederate socially modeling social anxiety-related behavioral markers before consuming an alcoholic drink and no longer displaying said markers following drink consumption, or they were assigned to a control condition in which the confederate enacted socially anxious behaviors throughout the entirety of the video. Participant state-based social anxiety was assessed both before and after they had themselves drank a placebo alcoholic drink. It was hypothesized that viewing a gender-matched model experiencing an anxiety reduction following alcohol consumption would reduce participants' state social anxiety. It was additionally believed that this effect would be stronger for women than for men, based on research on placebo responding to medication side-effects (Faase et al., 2015). A secondary hypothesis posited that participants in the treatment condition would be more likely to agree to partake in a proposed task in which they would talk on camera about their experiences with alcohol during the study alcohol detoxification period.

Results of the study did not support the hypothesis. The videotaped manipulation did not have a significant impact on participants' post-drinking state social anxiety scores, nor was gender moderation found. While analyses using a novel behavioral intention measure of social anxiety ("yes" or "no" response as to whether they would speak on camera about their experiences with alcohol), did not reach statistical significance ( $p = .051$ ), the pattern of results showed support for the opposite direction as hypothesized. In other words, it would suggest that those who witnessed the treatment condition video, wherein the actor/actress is more socially relaxed following drinking, were *less* likely to agree to speak on camera. These null findings cannot be attributed to baseline differences between conditions, as no baseline differences were found in terms of demographics, drinking behavior, education, exposure to academic marketing courses, alcohol expectancies, anxiety, or depression.

However, there was found to be a significant decrease in state social anxiety post-manipulation, when analyzed across genders and conditions. One potential explanation for this

is that participants simply became more comfortable with the researcher, whom they spent the entirety of the study with in fairly close proximity. Another explanation may be that participants had a lessened degree of worry related to their performance on the study by the post-manipulation measures, having seen firsthand that the study was relatively devoid of performance evaluation. This was not assessed for, however, so this is merely speculative. Overall, this decrease in state social anxiety across conditions post-manipulation could be attributable to any number of possible factors.

While previous research in the medical/pharmaceutical domain has found powerful social modeling effects related to medication side-effects, it is possible that this does not translate well to social anxiety and/or alcohol consumption (Broderick, Kaplan-Liss, & Bass, 2011; Colloca & Benedetti, 2009; Faasse, et al., 2015; Mazzoni et al., 2010). For example, differences between the constructs of alcohol vs. prescription medication, side-effects vs. social anxiety, and how learning across lifetime relates to these various constructs involved.

Beginning with differences between alcohol and prescription drugs, they undoubtedly differ in their *de facto* use – Alcohol is generally used for recreational purposes while prescription drugs are, at least intended, to be used to treat a physical or mental ailment. I propose that one factor that may have impacted the results of the present study is the effect of pre-existing expectancies related to alcohol vs. prescription medications. Whereas prescription medication refers to a broad swathe of substances, which would presumably lead those instructed to take such medications to have different expectations for what side-effects may or may not occur, alcohol is neither novel for those included in this study (only active drinkers were allowed in the study for ethical purposes) nor devoid of baseline expectancies.

Participants in this study were assessed for baseline alcohol expectancies and reported holding both negative alcohol expectancies (e.g., “I would be clumsy”;  $M_{\text{control}} = 1.94$ ,  $SD = .52$ ;  $M_{\text{treatment}} = 2.03$ ,  $SD = .45$ ; on a 1 “disagree” to 4 “agree” scale) and positive alcohol expectancies (e.g., “I would feel calm”;  $M_{\text{control}} = 2.61$ ,  $SD = .74$ ;  $M_{\text{treatment}} = 2.63$ ,  $SD = .57$ ; on a

1 “disagree” to 4 “agree” scale). Additionally, 53.8% of the sample provided a response of “agree” when asked whether they would act sociable after drinking, and results were similar when they were asked if it would be easier to talk to people (51.3%) or be talkative generally (53.8%). It is known that alcohol expectancies can impact one’s subjective response to alcohol (Sher, 1985). As such, it is possible that participants in this study may have been somewhat inoculated against the impact of social modeling due to pre-existing expectancies regarding what alcohol would do to them. Any prospective impact of social modeling may have thereby been “washed out” due to expectancies, in other words. The present study utilized a novel mixed drink in an attempt to circumvent preexisting alcohol-related expectancies as much as possible, but it is likely that participants nevertheless had their own presumption about the prospective effects of the drink based on the mere fact that they were told it included alcohol.

On the other hand, the pharmaceutical literature that inspired this study did not assess for global medication-related expectancies. Further, given the broad swathe of existing medications, this may have contributed to increased effectiveness of placebo in those studies. No participants in such studies would have had any previous experience with the specific medication that they believed they were being given. Conversely, while the present study used a novel mixed drink, in the hopes of avoiding well documented issues related to alcohol expectancies, participants would nevertheless likely hold some form of alcohol-related expectancies (Schlauch et al., 2010). Thus, it is impossible to know whether alcohol is unique in the type and strength of expectancies held by comparison to pharmaceuticals, but it seems rational to believe that a difference would exist.

While social modeling likely informed participants in this study as regards effects from drinking as discussed, personal experiences are important to consider as well. Removed from what they may have learned from previous exposure to advertising, viewing social models *in vivo*, and other sources of information, the active drinkers included in the present study likely had enough prior direct experiences with alcohol to have acquired some operant conditioning.

Building on this, it is probable that they would have entered the study with some experience-informed impression regarding what happens to them internally after drinking. Previous research has found that adolescent drinking expectancies change over time, as they attain more personal experiences consuming alcohol, and the authors proposed operant conditioning as a possible cause of this change (Christiansen, Goldman, & Inn, 1982). It is challenging to disentangle where participants' ideas about alcohol's effects may have come from in the present study, and it is thereby useful to consider not just that participants in this study would have had preexisting ideas about drinking but that the creation and maintenance of those ideas likely varied.

Just as alcohol and medications differ in crucial respects, so do anxiety responses and medication side-effects. A drug side-effect would have a more isolated context, meaning that in a controlled laboratory environment, participants would be likely to only subjectively experience related side-effects in that context. Whereas social anxiety could be triggered, even in a controlled laboratory environment, by other factors such as interacting with an unfamiliar person (i.e., the experimenter) or being in an unfamiliar context (i.e., a laboratory office). Overall, my proposal is that social anxiety can be experienced across a variety of contexts and therefore influenced by varied factors, while side-effects of medication are tied directly to ingestion of said medications. Additionally, while medication use was not assessed in terms of lifetime frequency or dosage in this study, it is possible that participants would be more likely to have prior experience with social anxiety vs. specific medication side-effects, potentially contributing to more flexibility in new learning about medication side-effects vs. social anxiety.

Ultimately, there are numerous differences between the present study and past pharmacological research on social modeling of side-effects that may have contributed to the lack of significant findings. The potential for the novel nature of a prescription drug, as compared to the high likelihood of a great deal of direct and indirect prior learning related to both alcohol and social anxiety, may have made alcohol and social anxiety unsuitable correlates



to this past research. That said, social modeling was found in past research to be a powerful mechanism in shaping participant drinking (Abar & Maggs, 2010; Read, Wood, & Capone, 2005; Talbot, Moore, & Usdan, 2012), and yet the present study's hypothesis was unsupported. The importance of prior learning related to the effects of drinking and expectancies previously discussed may have made it more challenging to model a subjective response to drinking versus drinking behavior. This sample included only active drinkers whom entered the study with existing alcohol outcome expectancies, so it is difficult to gauge what the effect would have been were the substance used more novel.

### **Limitations and Future Directions**

Ultimately, a total sample of 39 participants' data were analyzed for this study, falling short of the sample size of 60 suggested by *a priori* power analysis to detect the effects. While the behavioral intention measure was approaching significance and had a promising effect size ( $\Phi = .316$ ), it was in the opposite of the hypothesized direction (i.e., those in the control condition were more likely to agree to speak on camera), and the effects of condition, gender, and the interaction terms for state social anxiety were all non-significant. Effect sizes for condition ( $\eta_p^2 = .005$ ), gender ( $\eta_p^2 = .001$ ), and the interaction term ( $\eta_p^2 = .007$ ) were all well below the suggested cutoff for a small effect (Cohen, 1988), suggesting that it is unlikely further data collection would significantly increase the likelihood of a significant finding.

Prior learning related to both alcohol and social anxiety are believed to be significant limitations as well. Prior pharmacological research that informed the creation of the present study may have utilized research constructs that, being more novel in nature, would invoke less prior learning in participants. Were participants in the current study to have had little exposure throughout their lives to alcohol and/or social anxiety, it is possible that social modeling would have been more readily able to impact their state social anxiety.

A simple effect across conditions was detected, showing that there was a significant decrease in post-manipulation anxiety. It is thereby likely that some factor(s) other than the

study's manipulation caused this state social anxiety reduction. One explanation is that participants experienced an initial small increase in social anxiety due to being in an unfamiliar place, interacting with an unfamiliar researcher and then, by the time post-manipulation data was collected, they had become generally more comfortable with their situation. Alternatively, it is noteworthy how low pre-manipulation SSAQ scores were ( $M = 1.75$ ,  $SD = .62$ ) on the 1 to 5 scale. This may have created a floor effect in which there was minimal possibility for the manipulation to lower social anxiety scores by a notable margin. Perhaps utilizing a clinical sample higher in social anxiety may have produced a different finding, allowing more potential for change in SSAQ scores.

Some participants expressed during debriefing procedures that the drink did not come across as particularly alcoholic, and given that participants consumed only one 16 oz. glass, the placebo may have been less effective than ideal. Of those included in the final sample, 22 (56.4%) stated it had "Almost no alcohol/No alcohol" and 17 (43.6%) indicated it had "Just the right strength of alcohol." Further, 30 participants (76.9%), when assessing their perceived level of intoxication following the drink, said they felt "Not at all intoxicated" and 9 (23.1%) said that they were "Slightly intoxicated." It seems likely, given these findings, that were the social modeling itself hypothetically effective at all, the inefficacy of the placebo used in this study may have been a core barrier to finding an effect.

Future research would benefit from considering how pre-existing learning related to both social anxiety and alcohol may create additional challenges when attempting to alter affective responses to drinking via social modeling. Thinking about the usage in this study of state-based assessment of social anxiety, careful planning to avoid triggering social anxiety due to factors beyond the central manipulation would be both critical and challenging. One way to approach this would be to allow for more time between the beginning of the study and when baseline measures are assessed. This would give participants additional time to acclimate to both the physical context and the researcher.

As the present study did not provide support for social modeling a social anxiety reduction from drinking, disentangling the constructs and investigating them individually may be beneficial. For one, investigating the degree to which social anxiety can be impacted via social modeling broadly would be critical. Further, piecing apart what effect social modeling can have on subjective response to drinking alcohol, as well as accounting for alcohol expectancies and operant conditioning, may provide further ability to determine how large of an effect can be achieved. Better understanding what contribution short-term social modeling can have on response to alcohol consumption may additionally provide a manner to statistically control for other factors (e.g., alcohol expectancies) that may have confounded the present study. Additionally, considering the poor efficacy of the placebo in this study, as well as potential floor effects related to low pre-manipulation state social anxiety, it is conceivable that any potential impact of the manipulation may have washed-out due to such factors. Finally, it is worth noting that this study focused on a sample of predominantly White, predominantly college-attending emerging adults, so generalizability to other populations is extremely limited.

## **Conclusions**

In this study the impact of social modeling of social anxiety reduction from drinking utilizing a videotaped confederate manipulation was assessed. While there was found to be a significant reduction in participants' state social anxiety post-manipulation, after they consumed a placebo alcoholic beverage, as compared to pre-manipulation, this was not attributable to the manipulation itself, gender, or the interaction of the two. Numerous factors may have influenced the null findings of the study, including important differences in various constructs of the study as compared to prior pharmaceutical research utilizing somewhat similar procedures, lack of efficacy of the placebo, and possible floor effects related to low pre-manipulation social anxiety in the included sample. The present study may, however, provide future research with important findings to help guide additional investigation into how state social anxiety, social modeling, and

alcohol may relate. Future research, for example, may find larger effects if utilizing a clinical sample of socially anxious individuals.

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### Tables

Table 1. *Demographic information for total recruited sample*

<b>Variable</b>	<b>Total</b>	<b>Percentage</b>
Sex		
Men	30	58.8
Women	21	41.2
Ethnicity		
White	30	58.8
Hispanic/Latino	8	15.7
Black	6	11.8
Asian	3	5.9
American Indian	1	2.0
Other	3	5.9
Employment Status		
Full time student	23	45.1
Part time regular employment	21	41.2
Full time regular employment	5	9.8
Temporary employment	1	2.0
Unemployed	1	2.0
	<i>M</i>	<i>SD</i>
Age	22.4	1.63

Table 2. *Demographic information for analyzed sample*

<b>Variable</b>	<b>Total</b>	<b>Percentage</b>
Sex		
Men	21	53.8
Women	18	46.2
Ethnicity		
White	21	53.8
Hispanic/Latino	8	20.5
Black	5	12.8
Asian	2	5.1
American Indian	1	2.6
Other	2	5.1
Employment Status		
Full time student	17	43.6
Part time regular employment	17	43.6
Full time regular employment	4	10.3
Temporary employment	1	2.6
Unemployed	0	0
	<i>M</i>	<i>SD</i>
Age	22.0	1.20

Table 3. *Background variables by condition (t-tests)*

Variable	Mean (SD)		Statistic		
	<i>Treatment</i>	<i>Control</i>	<i>t-test</i>	<i>df</i>	<i>p</i>
Total AUDIT score	6.26 (2.81)	7.63 (3.32)	1.37	36	.178
CEOA – Positive expectancies	2.63 (0.57)	2.61 (0.75)	-0.11	36	.915
CEOA – Negative expectancies	2.03 (0.45)	1.94 (0.52)	-0.57	36	.574
DMQ-R – Enhancement	14.68 (4.97)	15.95 (4.54)	0.82	36	.419
DMQ-R – Coping	9.84 (3.53)	8.47 (2.44)	-1.39	36	.173
DMQ-R – Sociability	17.63 (5.53)	15.00 (4.12)	-1.67	36	.105
DMQ-R – Conformity	7.05 (2.07)	6.84 (2.19)	-0.31	36	.762
Social Interaction Anxiety Scale	17.16 (11.83)	18.79 (10.38)	0.45	36	.654
Social Phobia Scale	9.84 (7.04)	11.37 (9.06)	0.58	36	.566
PHQ-9 (Depression) score	3.47 (2.48)	3.58 (2.99)	0.12	36	.907

*Note.* AUDIT = Alcohol Use Disorders Identification Test; CEOA = Comprehensive Effects of Alcohol Questionnaire; DMQ-R = Drinking Motives Questionnaire, Revised; PHQ-9 = Patient Health Questionnaire-9

Table 4. *Background variables by condition (Chi-squared tests)*

Variable	Mean		Statistic		
	Treatment	Control	$\chi^2$	df	p
Race/ethnicity			3.43	5	.634
White	12	9			
Hispanic	4	4			
Black	2	2			
Asian	0	2			
American Indian	0	1			
Other	1	1			
Gender			0.42	1	.516
Men	9	11			
Women	10	8			
Current college student			1.03	1	.311
Yes	18	19			
No	1	0			
Year in college			2.55	4	.636
Freshman	0	1			
Sophomore	3	1			
Junior	4	3			
Senior	9	12			
Graduate school	2	2			
Employment status			2.31	3	.511
Full time	3	1			
Part time	7	9			
Temporary	1	0			
Full time student	8	9			
Personal marketing experience			0.49	1	.485
Yes	7	5			
No	12	14			
Household marketing experience			2.03	2	.362
Yes	1	3			
No	17	16			
Not sure	1	0			
Ever purchase premixed drinks			0.13	1	.721
Yes	13	14			
No	6	5			
Preferred alcoholic drink			1.29	3	.733
Hard liquor (not in a mixed drink)	4	7			
Mixed drinks	6	4			
Beer	8	7			
Wine	1	1			
How often one purchases alcohol			4.00	3	.261
Daily or almost daily	2	0			
Weekly	9	9			
Monthly	4	8			
Bi-monthly or less	4	2			

Table 5. *Descriptive statistics for post-manipulation state social anxiety by gender and condition adjusted for pre-manipulation state social anxiety as covariate*

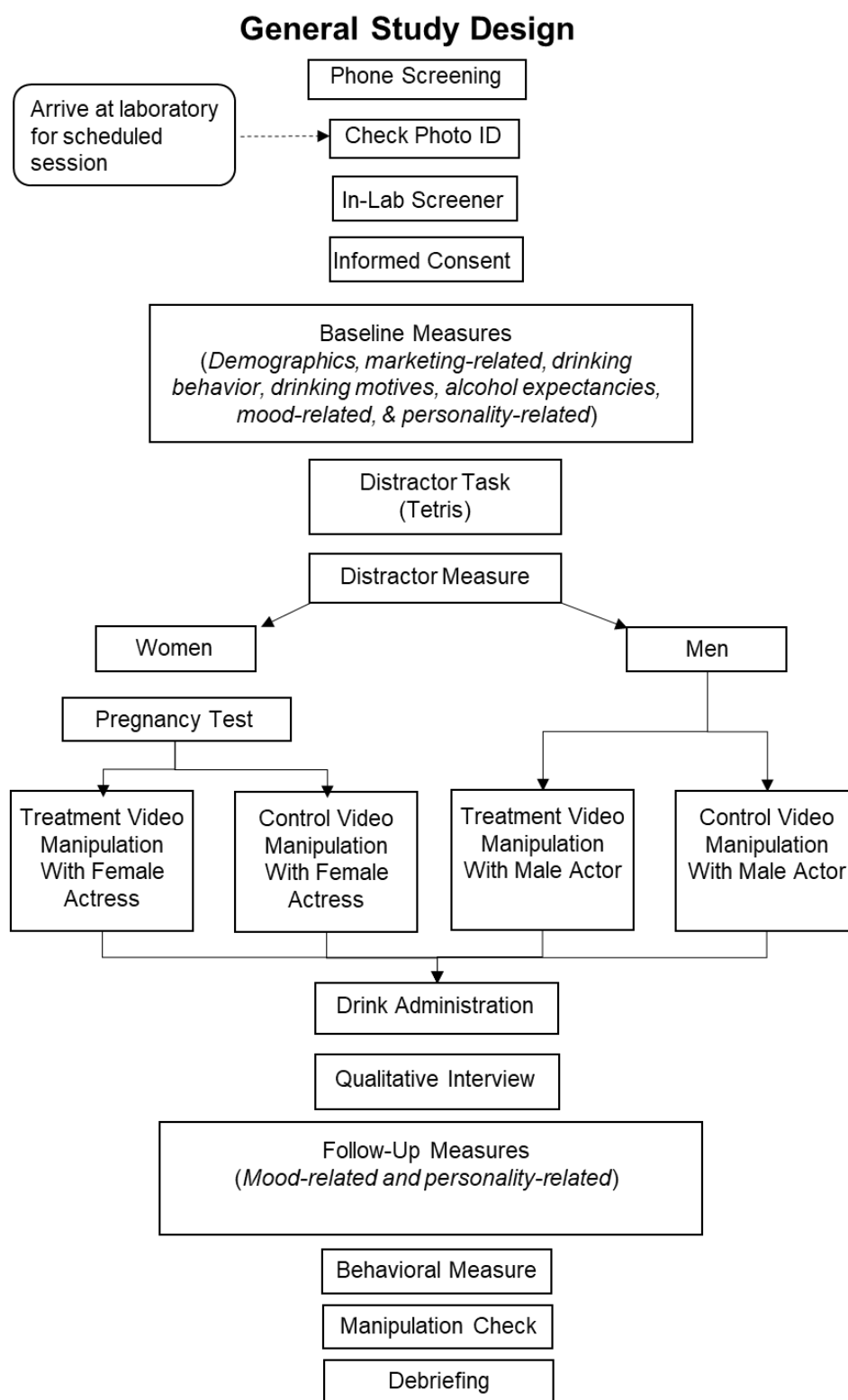
<b>Variable</b>	<b><i>M</i></b>	<b><i>SE</i></b>	<b><i>n</i></b>
Women			
Control	1.20	0.11	8
Treatment	1.29	0.10	10
Men			
Control	1.23	0.09	11
Treatment	1.22	0.11	9

Table 6. *Descriptive statistics for post-manipulation state social anxiety by gender and condition unadjusted for pre-manipulation state social anxiety*

<b>Variable</b>	<b><i>M</i></b>	<b><i>SD</i></b>	<b><i>n</i></b>
Women			
Control	1.23	0.44	8
Treatment	1.34	0.41	10
Men			
Control	1.23	0.37	11
Treatment	1.11	0.20	9

## Figure

Figure 1. *General Study Design Flow-Chart*



## Appendices

### Appendix A

#### Informed Consent

**Title: Consumer Evaluation of a Newly Developed Alcoholic Beverage**

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*Description:* The purpose of this study is to examine consumer backgrounds, preferences, and attitudes regarding a new alcoholic beverage developed for the young adult demographic. As part of the study you will answer multiple questionnaires including demographic questions and rating scales. You will also be required to play a videogame (i.e., Tetris), watch a brief video, and take part in a brief one-on-one interview. Some questions will ask about your drinking behaviors, drinking preferences, buying behaviors, personality, mood, and attitudes towards drinking more generally.

You will be asked to consume one alcoholic beverage as part of the study. You must be between the ages of 21 and 28 and have some legal form of identification to participate in this study. You must not have any allergies or unusual reactions to vodka, quinine, fruit juices or flavorings, or carbonation. Women who are pregnant, trying to become pregnant, or think they might be pregnant will also not be allowed to participate (women will be required to take a pregnancy test as part of the study). Further, it is necessary that you are a current drinker, meaning that you have consumed at least one standard size alcoholic beverage in the previous 30 days. You may not participate in this study if you are trying to abstain from alcohol, in recovery from alcoholism, or are seeking or undergoing treatment for alcohol problems.

The study is estimated to take approximately one hour. If your intoxication level exceeds safe standards for release (blood alcohol level > 0.04%) at the end of the study, you may be asked to remain in the lab for a brief time until it is safe for you to leave.

*Risks and Benefits:* There are no known or expected risks from participation in this study. However, there might be temporary discomfort caused by answering questions related to your personality and drinking behaviors. All of your responses to the questionnaires will remain anonymous, however. Additionally, you may experience some minor side-effects of consuming an alcoholic beverage.

In terms of benefits, you will receive either one-half SONA credit per 30 minutes of participation (if you signed up via SONA) or monetary compensation equaling \$10 for your time and participation. Additionally, the knowledge gained may help researchers understand the best ways to market this alcoholic beverage.



*Voluntary Participation and Right to Discontinue:* Throughout all portions of the study, participation is completely voluntary. Individuals can discontinue participation at any time without any negative consequences.

*Confidentiality:* All information about individuals obtained as a result of participation in this research will be kept confidential to the extent allowed by law and University policy. All data will be stored in password-protected files in locked rooms only accessible to the researchers and will be recorded anonymously using coded subject numbers. Names will only be recorded for the purpose of contacting about your appointment and names will not be linked to your data. Identifying information will be destroyed after six months. Your anonymous research records will be kept for five years after the study is closed and then destroyed. Any scientific reports or other applications of the results of the research will include no individual identifying information. We will present the research results as a group.

*Informed Consent:* By signing below, I am indicating that I have read this form and I understand what it says. I have had a chance to ask any questions and my questions were answered to my satisfaction and that I agree to participate in this study.

---

Print Name

---

Signature

---

Date

## Appendix B

### Eligibility Pre-Screener (Via Phone)

1. What is your gender? Male / Female / Transgender / Other
2. Are you between 21 – 28 years old? Yes / No
3. Do you have a legal photo ID that you can bring to your session to confirm your age?  
Yes / No
4. Have you consumed at least one alcoholic drink within the past 30 days? Yes / No
5. Now I'm going to ask you some questions about your use of alcoholic beverages during the past year.

Box 4	
The Alcohol Use Disorders Identification Test: Interview Version	
<p>Read questions as written. Record answers carefully. Begin the AUDIT by saying "Now I am going to ask you some questions about your use of alcoholic beverages during this past year." Explain what is meant by "alcoholic beverages" by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks". Place the correct answer number in the box at the right.</p>	
<p>1. How often do you have a drink containing alcohol?</p> <p>(0) Never [Skip to Qs 9-10] (1) Monthly or less (2) 2 to 4 times a month (3) 2 to 3 times a week (4) 4 or more times a week</p> <input type="text"/>	<p>6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?</p> <p>(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily</p> <input type="text"/>
<p>2. How many drinks containing alcohol do you have on a typical day when you are drinking?</p> <p>(0) 1 or 2 (1) 3 or 4 (2) 5 or 6 (3) 7, 8, or 9 (4) 10 or more</p> <input type="text"/>	<p>7. How often during the last year have you had a feeling of guilt or remorse after drinking?</p> <p>(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily</p> <input type="text"/>
<p>3. How often do you have six or more drinks on one occasion?</p> <p>(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily</p> <p>Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0</p> <input type="text"/>	<p>8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?</p> <p>(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily</p> <input type="text"/>
<p>4. How often during the last year have you found that you were not able to stop drinking once you had started?</p> <p>(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily</p> <input type="text"/>	<p>9. Have you or someone else been injured as a result of your drinking?</p> <p>(0) No (2) Yes, but not in the last year (4) Yes, during the last year</p> <input type="text"/>
<p>5. How often during the last year have you failed to do what was normally expected from you because of drinking?</p> <p>(0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily</p> <input type="text"/>	<p>10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?</p> <p>(0) No (2) Yes, but not in the last year (4) Yes, during the last year</p> <input type="text"/>
<p>Record total of specific items here <input type="text"/></p> <p>If total is greater than recommended cut-off, consult User's Manual.</p>	

6. Have you ever had any history of medical disorders that may be contraindicated or negatively influenced by alcohol consumption? For example, liver disease, diabetes, or bipolar disorder? Yes / No
7. Many medications should not be taken with alcohol. For example, medications for allergies, mental health disorders, or pain. Do you currently take any medications that may be contraindicated or negatively influenced by alcohol consumption on a regular basis? Yes / No
8. Do you currently use any illicit drugs (e.g., marijuana, cocaine, methamphetamine, psychedelics, or medications like Adderall or Oxycodone that are not prescribed to you) on a regular basis? Yes / No
9. Have you ever had allergies or a bad reaction to ingesting vodka, quinine (tonic water), berry-based juices or flavorings, or carbonation? Yes / No
10. We cannot include people in the study who are trying to abstain from alcohol, reduce their drinking, or who require intensive treatment for alcohol abuse problems. Do you feel that you fall into any of these categories? Yes / No
11. (For Women) Are you currently pregnant, planning to become pregnant, or feel there may be a chance you are pregnant? Yes / No

## Appendix C

### Eligibility Screener

1. Are you between 21 – 28 years old? Yes / No
2. When was the last time that you consumed at least one alcoholic drink? \_\_\_\_\_
3. Have you ever had any history of medical disorders that may be contraindicated or negatively influenced by alcohol consumption? Yes / No
4. Do you currently take any medications that may be contraindicated or negatively influenced by alcohol consumption on a regular basis? Yes / No
5. When was the last time you have taken any type of prescription (e.g., antibiotics, opioid pain medications) or over-the-counter (e.g., Tylenol, antacids, cough medicine) medications, except for vitamins or birth control pills? \_\_\_\_\_
  - a. What type of medication was it? \_\_\_\_\_
6. Do you currently use any illicit drugs (e.g., marijuana, cocaine, methamphetamine, psychedelics) on a regular basis? Yes / No
7. Do you have any allergies to vodka, quinine (tonic water), berry-based juices or flavorings, or carbonation? Yes / No
8. When did you last eat or have a meal? \_\_\_\_\_
9. We cannot include people in the study who are trying to abstain from alcohol, reduce their drinking, or who require intensive treatment for alcohol abuse problems. Do you feel that you fall into any of these categories? Yes / No
10. (For Women) Are you currently pregnant, planning to become pregnant, or feel there may be a chance you are pregnant? Yes / No

## Appendix D

### Demographics Questions

1. What is your gender? Male / Female / Transgender / Other
2. What is your age? \_\_\_\_\_
3. With which race/ethnicity do you most identify?  
 White (non-Hispanic) / African American (non-Hispanic) / Hispanic / Asian / American  
 Indian / Other
4. Are you currently a college student? Yes / No
  - a. (If Yes) What year are you in college?
    - i. \_\_\_\_\_ Freshman
    - ii. \_\_\_\_\_ Sophomore
    - iii. \_\_\_\_\_ Junior
    - iv. \_\_\_\_\_ Senior
    - v. \_\_\_\_\_ Graduate School
  - b. (If Yes) What is your major? \_\_\_\_\_
  - c. (If No) What best describes your highest level of education?
    - \_\_\_\_\_ Eighth grade or less
    - \_\_\_\_\_ High school degree or less
    - \_\_\_\_\_ Some college
    - \_\_\_\_\_ Two year college degree
    - \_\_\_\_\_ Four-year college degree
    - \_\_\_\_\_ Graduate degree
    - \_\_\_\_\_ Professional school
5. Have you taken any courses on marketing or advertising? Yes / No / Not sure
6. How many members currently live in your household? \_\_\_\_\_
7. Which of the following best describes your employment status?
  - a. Full time regular employment
  - b. Part-time regular employment
  - c. Temporary employment

- d. Full time student
  - e. Retired
  - f. Unemployed
8. What is your household income? \_\_\_\_\_
9. Do you or anyone in your household work or have worked in the marketing or advertising fields? Yes / No / Not sure

## Appendix E

### Marketing-Related Questions

1. Do you ever purchase premixed alcoholic drinks? Yes / No
  - a. (If Yes) What do you usually buy? \_\_\_\_\_
2. Who in your household usually makes the buying decisions regarding alcoholic beverages? Myself / My Partner or Spouse / My Roommate / My Parent / Other
3. Where do you usually go when you're looking to purchase alcoholic beverages?  
\_\_\_\_\_
4. How often do you purchase alcoholic beverages? Daily or almost daily / Weekly / Monthly / Bi-Monthly or Less Frequently/Never
5. How long does it usually take you to make a buying decision? Very little time, I usually know what I'm looking for / Some time, I like to browse / A long time, I like to weigh all of my potential options
6. What is your typical budget for alcoholic beverages in an average month? \_\_\_\_\_
7. When I select an alcoholic beverage, I tend to choose:
  - a. \_\_\_\_\_ Mixed Drinks
  - b. \_\_\_\_\_ Hard Liquor (not in a mixed drink)
  - c. \_\_\_\_\_ Beer
  - d. \_\_\_\_\_ Wine
  - e. \_\_\_\_\_ Other. Describe: \_\_\_\_\_
8. I tend to order the same alcoholic beverage frequently.
  - a. \_\_\_\_\_ Strongly Disagree
  - b. \_\_\_\_\_ Somewhat Disagree
  - c. \_\_\_\_\_ Neither Agree or Disagree
  - d. \_\_\_\_\_ Somewhat Agree
  - e. \_\_\_\_\_ Strongly Agree
9. I would rather drink at home than go out to a bar or restaurant to drink.

- a. \_\_\_\_\_ Strongly Disagree  
b. \_\_\_\_\_ Somewhat Disagree  
c. \_\_\_\_\_ Neither Agree or Disagree  
d. \_\_\_\_\_ Somewhat Agree  
e. \_\_\_\_\_ Strongly Agree
10. The quality of an alcoholic beverage (e.g., the flavor) is more important than the quality of the service (e.g., the quality of a bartender at a bar).
- a. \_\_\_\_\_ Strongly Disagree  
b. \_\_\_\_\_ Somewhat Disagree  
c. \_\_\_\_\_ Neither Agree or Disagree  
d. \_\_\_\_\_ Somewhat Agree  
e. \_\_\_\_\_ Strongly Agree
11. I'm open to trying new types of alcoholic beverages.
- a. \_\_\_\_\_ Strongly Disagree  
b. \_\_\_\_\_ Somewhat Disagree  
c. \_\_\_\_\_ Neither Agree or Disagree  
d. \_\_\_\_\_ Somewhat Agree  
e. \_\_\_\_\_ Strongly Agree
12. I would spend a little more to have a bar-quality alcoholic beverage at home.
- a. \_\_\_\_\_ Strongly Disagree  
b. \_\_\_\_\_ Somewhat Disagree  
c. \_\_\_\_\_ Neither Agree or Disagree  
d. \_\_\_\_\_ Somewhat Agree  
e. \_\_\_\_\_ Strongly Agree
13. I like alcoholic beverages that are a good fit for my personality.
- a. \_\_\_\_\_ Strongly Disagree  
b. \_\_\_\_\_ Somewhat Disagree  
c. \_\_\_\_\_ Neither Agree or Disagree  
d. \_\_\_\_\_ Somewhat Agree  
e. \_\_\_\_\_ Strongly Agree



14. I would spend a little more for a drink that seemed like a good fit for my personality.

- a. \_\_\_\_\_ Strongly Disagree
- b. \_\_\_\_\_ Somewhat Disagree
- c. \_\_\_\_\_ Neither Agree or Disagree
- d. \_\_\_\_\_ Somewhat Agree
- e. \_\_\_\_\_ Strongly Agree

## Appendix F

State Social Anxiety Questionnaire (Kashdan & Steger, 2006; SSAQ)  
& Profile of Mood States (Combined) (McNair et al., 1971; POMS)

Please read the following items and indicate the degree to which you have been experiencing these thoughts and feelings since you finished your drink.

1. *I felt on edge.*

- |    |   |
|----|---|
| a. | _____ <i>Very Slightly / Not at all</i> |
| b. | _____ <i>A Little</i>                   |
| c. | _____ <i>Moderately</i>                 |
| d. | _____ <i>Very Much</i>                  |
| e. | _____ <i>Extremely</i>                  |

2. *I worried about what other people thought of me.*

- |    |   |
|----|---|
| a. | _____ <i>Very Slightly / Not at all</i> |
| b. | _____ <i>A Little</i>                   |
| c. | _____ <i>Moderately</i>                 |
| d. | _____ <i>Very Much</i>                  |
| e. | _____ <i>Extremely</i>                  |

3. *I felt energetic.*

- |    |   |
|----|---|
| a. | _____ <i>Very Slightly / Not at all</i> |
| b. | _____ <i>A Little</i>                   |
| c. | _____ <i>Moderately</i>                 |
| d. | _____ <i>Very Much</i>                  |
| e. | _____ <i>Extremely</i>                  |

4. *I felt hopeless.*

- |    |   |
|----|---|
| a. | _____ <i>Very Slightly / Not at all</i> |
| b. | _____ <i>A Little</i>                   |
| c. | _____ <i>Moderately</i>                 |
| d. | _____ <i>Very Much</i>                  |
| e. | _____ <i>Extremely</i>                  |

5. *I felt sympathetic.*

- |    |   |
|----|---|
| a. | _____ <i>Very Slightly / Not at all</i> |
| b. | _____ <i>A Little</i>                   |

- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

6. I was afraid other people noticed my shortcomings.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

7. *I felt spiteful.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

8. *I felt relaxed.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

9. *I felt uneasy.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

10. I was afraid that others did not approve of me.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*

- d. \_\_\_\_\_ Very Much  
e. \_\_\_\_\_ Extremely
11. *I felt friendly.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*
12. *I felt tense.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*
13. *I felt unhappy.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*
14. *I felt clear-headed.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*
15. *I was worried that I would say or do the wrong things.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*

16. *I felt lively.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

17. *I felt sorry for things done.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

18. *I felt listless.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

19. *When I was talking to someone, I was worried about what they were thinking of me.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

20. *I felt peeved.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

21. *I felt considerate.*

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

22. I felt uncomfortable and embarrassed when I was the center of attention.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

23. I felt sad.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

24. I felt shaky.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

25. I felt friendly.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*
- c. \_\_\_\_\_ *Moderately*
- d. \_\_\_\_\_ *Very Much*
- e. \_\_\_\_\_ *Extremely*

26. I felt angry.

- a. \_\_\_\_\_ *Very Slightly / Not at all*
- b. \_\_\_\_\_ *A Little*

- c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*
27. *I felt confused.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*
28. *I found it hard to interact with people.*
- a. \_\_\_\_\_ *Very Slightly / Not at all*  
b. \_\_\_\_\_ *A Little*  
c. \_\_\_\_\_ *Moderately*  
d. \_\_\_\_\_ *Very Much*  
e. \_\_\_\_\_ *Extremely*

## Appendix G

### Personal Attributes Questionnaire (Spence, Helmreich, & Stapp, 1973; PAQ)

The items below inquire about what kind of person you think you are. Each item consists of a PAIR of characteristics, with the letters A-E in between. For example,

Not at all artistic

A.....B.....C.....D.....E

Very artistic

Each pair describes contradictory characteristics - that is, you cannot be both at the same time, such as very artistic and not at all artistic.

The letters form a scale between the two extremes. You are to choose a letter which describes where YOU fall on the scale. For example, if you think that you have no artistic ability, you would choose A. If you think that you are pretty good, you might choose D. If you are only medium, you might choose C, and so forth.

M-F	1.	Not at all aggressive	A.....B.....C.....D.....E	Very aggressive*
M	2.	Not at all independent	A.....B.....C.....D.....E	Very independent*
F	3.	Not at all emotional	A.....B.....C.....D.....E	Very emotional*
M-F	4.	Very submissive	A.....B.....C.....D.....E	Very dominant*
M-F	5.	Not at all excitable in a major crisis*	A.....B.....C.....D.....E	Very excitable in a major crisis
M	6.	Very passive	A.....B.....C.....D.....E	Very active*
F	7.	Not at all able to devote self completely to others	A.....B.....C.....D.....E	Able to devote self completely to others*
F	8.	Very rough	A.....B.....C.....D.....E	Very gentle*
F	9.	Not at all helpful to others	A.....B.....C.....D.....E	Very helpful to others*
M	10.	Not at all competitive	A.....B.....C.....D.....E	Very competitive*
M-F	11.	Very home oriented	A.....B.....C.....D.....E	Very worldly*
F	12.	Not at all kind	A.....B.....C.....D.....E	Very kind*
M-F	13.	Indifferent to others' approval*	A.....B.....C.....D.....E	Highly needful of others' approval
M-F	14.	Feelings not easily hurt*	A.....B.....C.....D.....E	Feelings easily hurt
F	15.	Not at all aware of feelings of others	A.....B.....C.....D.....E	Very aware of feelings of others*
M	16.	Can make decisions easily*	A.....B.....C.....D.....E	Has difficulty making decisions
M	17.	Gives up very easily	A.....B.....C.....D.....E	Never gives up easily*
M-F	18.	Never cries*	A.....B.....C.....D.....E	Cries very easily
M	19.	Not at all self-confident	A.....B.....C.....D.....E	Very self-confident*
M	20.	Feels very inferior	A.....B.....C.....D.....E	Feels very superior*
F	21.	Not at all understanding of others	A.....B.....C.....D.....E	Very understanding of others*
F	22.	Very cold in relations with others	A.....B.....C.....D.....E	Very warm in relations with others*
M-F	23.	Very little need for security*	A.....B.....C.....D.....E	Very strong need for security
M	24.	Goes to pieces under pressure	A.....B.....C.....D.....E	Stands up well under pressure*



## Appendix H

### Patient Health Questionnaire-9 (Kroenke, Spitzer, & Williams, 2001; PHQ-9)

Over the **last 2 weeks**, how often have you been bothered by any of the following problems?

(Use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_

=Total Score: \_\_\_\_\_

If you checked off **any** problems, how **difficult** have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult  
at all  
☐

Somewhat  
difficult  
☐

Very  
difficult  
☐

Extremely  
difficult  
☐

## Appendix I

### Social Interaction Anxiety Scale (Mattick & Clarke, 1998; SIAS)

Please read each question carefully and indicate the degree to which you feel the statement is characteristic or true to you. Use the following scale to rate your responses:

0	1	2	3	4
Not at all	Slightly	Moderately	Very	Extremely

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).

0	1	2	3	4
---	---	---	---	---

2. I have difficulty making eye-contact with others.

0	1	2	3	4
---	---	---	---	---

3. I become tense if I have to talk about myself or my feelings.

0	1	2	3	4
---	---	---	---	---

4. I find difficulty mixing comfortably with the people I work with.

0	1	2	3	4
---	---	---	---	---

5. I tense up if I meet an acquaintance in the street.

0	1	2	3	4
---	---	---	---	---

6. When mixing socially, I am uncomfortable.

0	1	2	3	4
---	---	---	---	---

7. I feel tense if I am alone with just one other person.

0	1	2	3	4
---	---	---	---	---

8. I am at ease meeting people at parties, etc.

0	1	2	3	4
---	---	---	---	---

9. I have difficulty talking with other people.

0	1	2	3	4
---	---	---	---	---

10. I find it easy to think of things to talk about.

0	1	2	3	4
---	---	---	---	---

11. I worry about expressing myself because I feel awkward.

0	1	2	3	4
---	---	---	---	---

12. I find it difficult to disagree with another's point of view.

0	1	2	3	4
---	---	---	---	---

13. I have difficulty talking to an attractive person of the opposite sex.

0	1	2	3	4
---	---	---	---	---

14. I find myself worrying that I don't know what to say in social situations.

0	1	2	3	4
---	---	---	---	---

15. I am nervous mixing with people I don't know well.

0	1	2	3	4
---	---	---	---	---

16. I feel I'll say something embarrassing when talking.

0	1	2	3	4
---	---	---	---	---

17. When mixing in a group, I find myself worrying I will be ignored.

0	1	2	3	4
---	---	---	---	---

18. I am tense in a group.

0	1	2	3	4
---	---	---	---	---

19. I am unsure whether to greet someone I know only slightly.

0	1	2	3	4
---	---	---	---	---

## Appendix J

### Drinking Motives Questionnaire, Revised (Cooper, 1994; DMQ-R)

Below is a list of reasons people sometimes give for drinking alcohol. Thinking about your drinking in general, to what extent would you say that you drank for each of the following reasons?

- |     |   |            |          |          |            |              |
|-----|---|------------|----------|----------|------------|--------------|
| 1.  | To forget your worries                                  | Not at all | A little | Somewhat | Moderately | Very much so |
| 2.  | Because your friends pressure you to drink              | Not at all | A little | Somewhat | Moderately | Very much so |
| 3.  | Because it helps you enjoy a party                      | Not at all | A little | Somewhat | Moderately | Very much so |
| 4.  | Because it helps you when you feel depressed or nervous | Not at all | A little | Somewhat | Moderately | Very much so |
| 5.  | To be sociable  | Not at all | A little | Somewhat | Moderately | Very much so |
| 6.  | To cheer up when you are in a bad mood                  | Not at all | A little | Somewhat | Moderately | Very much so |
| 7.  | Because you like the feeling                            | Not at all | A little | Somewhat | Moderately | Very much so |
| 8.  | So that others won't kid you about not drinking         | Not at all | A little | Somewhat | Moderately | Very much so |
| 9.  | Because it's exciting                                   | Not at all | A little | Somewhat | Moderately | Very much so |
| 10. | To get high, buzzed, or drunk                           | Not at all | A little | Somewhat | Moderately | Very much so |
| 11. | Because it makes social gatherings more fun             | Not at all | A little | Somewhat | Moderately | Very much so |
| 12. | To fit in with a group you like                         | Not at all | A little | Somewhat | Moderately | Very much so |
| 13. | Because it gives you a pleasant feeling                 | Not at all | A little | Somewhat | Moderately | Very much so |
| 14. | Because it improves parties and celebrations            | Not at all | A little | Somewhat | Moderately | Very much so |

- |     |   |          |          |            |              |
|-----|---|----------|----------|------------|--------------|
| 15. | Because you feel more self-confident and sure of yourself |          |          |            |              |
|     | Not at all  | A little | Somewhat | Moderately | Very much so |
| 16. | To celebrate a special occasion with friends              |          |          |            |              |
|     | Not at all  | A little | Somewhat | Moderately | Very much so |
| 17. | To forget about your problems                             |          |          |            |              |
|     | Not at all  | A little | Somewhat | Moderately | Very much so |
| 18. | Because it's fun  |          |          |            |              |
|     | Not at all  | A little | Somewhat | Moderately | Very much so |
| 19. | To be liked   |          |          |            |              |
|     | Not at all  | A little | Somewhat | Moderately | Very much so |
| 20. | So you won't feel left out.                               |          |          |            |              |
|     | Not at all  | A little | Somewhat | Moderately | Very much so |

## Appendix K

### Social Phobia Scale (Mattick & Clarke, 1998; SPS)

Please read each question carefully and indicate the degree to which you feel the statement is characteristic or true to you. Use the following scale to rate your responses:

0	1	2	3	4	
Not at all	Slightly	Moderately	Very	Extremely	
1. I become anxious if I have to write in front of other people.	0	1	2	3	4
2. I become self conscious when using public toilets.	0	1	2	3	4
3. I can suddenly become aware of my own voice and of others listening to me.	0	1	2	3	4
4. I get nervous that people are staring at me as I walk down the street.	0	1	2	3	4
5. I fear I may blush when I am with others.	0	1	2	3	4
6. I feel self conscious if I have to enter a room where others are already seated.	0	1	2	3	4
7. I worry about shaking and trembling when I'm watched by other people.	0	1	2	3	4
8. I would get tense if I had to sit facing other people on a bus or a train.	0	1	2	3	4
9. I get panicky that others might see me to be faint, sick, or ill.	0	1	2	3	4
10. I would find it difficult to drink something if in a group of people.	0	1	2	3	4
11. It would make me feel self conscious to eat in front of a stranger at a restaurant.	0	1	2	3	4
12. I am worried people will think my behavior odd.	0	1	2	3	4
13. I would get tense if I had to carry a tray across a crowded cafeteria.	0	1	2	3	4
14. I worry I will lose control of myself in front of other people.	0	1	2	3	4
15. I worry I might do something to attract the attention of others.	0	1	2	3	4

16. When in an elevator I am tense if people look at me. 4	0	1	2	3
17. I can feel conspicuous when standing in a queue. 0	1	2	3	4
18. I get tense when I speak in front of other people. 0	1	2	3	4
19. I worry my head will shake or nod in front of other people.0	1	2	3	4
20. I feel awkward and tense if I know people are watching me. 4	0	1	2	3

## Appendix L

Comprehensive Effects of Alcohol Questionnaire (Fromme, Stroot, & Kaplan, 1993; CEOA)

**Instructions:** The following questions ask what you would expect to happen if you were under the influence of **ALCOHOL**. Circle from disagree to agree - depending on whether you expect the effect to happen to you if you were under the influence of alcohol. These effects will vary, depending upon the amount of alcohol you typically consume. This is not a personality test. **We want to know what you would expect to happen if you were to drink alcohol, not how you are when you are sober.** Example: If you are always emotional, you would not circle agree as your answer unless you expected to become more emotional if you drank.

**When I drink alcohol, I expect that \_\_\_\_\_:**

1. I would be outgoing

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

2. My senses would be dulled

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

3. I would be humorous

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

4. My problems would seem worse

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

5. It would be easier to express my feelings

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

6. My writing would be impaired

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4



7. I would feel sexy

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

8. I would have difficulty thinking

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

9. I would neglect my obligations

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

10. I would be dominant

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

11. My head would feel fuzzy

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

12. I would enjoy sex more

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

13. I would feel dizzy

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

14. I would be friendly

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

15. I would be clumsy

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

16. It would be easier to act out my fantasies

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

17. I would be loud, boisterous, or noisy

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

18. I would be feel peaceful

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

19. I would be brave and daring

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

20. I would feel unafraid

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

21. I would feel creative

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

22. I would be courageous

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

23. I would feel shaky or jittery the next day

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

24. I would feel energetic

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

25. I would act aggressively

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

26. My responses would be slow

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

27. My body would be relaxed

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

28. I would feel guilty

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

29. I would feel calm

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

30. I would feel moody

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

31. It would be easier to talk to people

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

32. I would be a better lover

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

33. I would feel self-critical

Disagree  
1

Slightly disagree  
2

Slightly agree  
3

Agree  
4

34. I would be talkative

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

35. I would act tough

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

36. I would take risks

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

37. I would feel powerful

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

38. I would act sociable

Disagree	Slightly disagree	Slightly agree	Agree
1	2	3	4

## Appendix M

### Distractor Task Questions

1. Please describe any ads that you saw on the webpage on which you played the game as best as you can remember. \_\_\_\_\_
  
2. What ad, if any one in particular, do you remember in the most detail? \_\_\_\_\_
  - a. What about that ad makes it stick out for you? \_\_\_\_\_
  
3. How much did you notice the ads while playing the game?
  - a. \_\_\_\_\_ Very slightly/Not at all
  - b. \_\_\_\_\_ A Little
  - c. \_\_\_\_\_ Moderately
  - d. \_\_\_\_\_ Very Much
  - e. \_\_\_\_\_ Extremely
  
4. How likely would you be to purchase something based on the ads that you saw?
  - a. \_\_\_\_\_ Very slightly/Not at all
  - b. \_\_\_\_\_ A Little
  - c. \_\_\_\_\_ Moderately
  - d. \_\_\_\_\_ Very Much
  - e. \_\_\_\_\_ Extremely
  
5. If the ads were related to something you liked (for example, an alcoholic beverage you enjoy) to what extent do you think you would have paid more attention to them?
  - a. \_\_\_\_\_ Very slightly/Not at all
  - b. \_\_\_\_\_ A Little
  - c. \_\_\_\_\_ Moderately
  - d. \_\_\_\_\_ Very Much
  - e. \_\_\_\_\_ Extremely
  
6. Other than the ads relating to something you like, what else could be done to make the ads draw your attention more? \_\_\_\_\_

## Appendix N

### Video Setup & Script

*You are now going to watch a short instructional video showcasing what the one-on-one qualitative interview may look like. We anticipate that some participants in this study have never taken part in this type of interview before, so we want you to watch this video so that you have an idea of the types of questions and responses that are typical. The answers the person in the video provides to the questions are, again, merely meant to demonstrate what one might say. Please do not feel that you have to provide the same or similar answers to them.*

### Control

	Word count or Time in seconds	SSAQ item	Behavioral indicator of SA
<i>*Footage begins by showing the participant seated, having a full drink*</i> <i>*Participant is making fairly little eye contact (looking downwards)*</i>	4 seconds		-Gaze avoidance -Short speech -Monotone
<i>*There are frequent, at times awkward pauses between dialogue, and the participant is clearly not entirely comfortable*</i>			-Rigid posture
I: I'd like you to drink this drink evenly over a 10 minute period. I'll leave you alone so that you can focus on the drink during that time. After the 10 minute period I'll return and ask you questions. Before you get started and I begin timing I'd like to ask a few preliminary questions. Sound good? P: <i>*Monotone*</i> Sure.	57 words  1 word  8 words 5 words		-Gaze Avoidance  -Short speech -Monotone  -Monotone -Short Speech -Gaze Avoidance
I: How appetizing does the drink look to you? P: <i>*Monotone, looking downwards*</i> It looks fine, I guess. I: What about it makes it appear good or bad?	9 words 10 words 5 words 19 words		-Short Speech
P: It looks like it might be a little sour. I: How similar does the drink appear to others you've had? P: <i>*Monotone*</i> It looks normal, I guess. I: Looking at it, does this seem like a drink you'd order at a bar or even make at home? P: <i>*Looking downwards*</i> Maybe. I don't know.	4 words		-Monotone  -Short Speech -Monotone

<p>I: How wide of a variety of drinks would you say that you find enjoyable? P: I like most drinks alright.</p> <p>I: Alright. <i>*Researcher writes something down*</i> P: I hope this is helpful. I don't know what kind of information you're looking for here. I: I just want your thoughts and opinions. You're doing just fine.</p> <p>I: In what kinds of contexts, places, or situations do you usually do your drinking? P: <i>*Looking downwards*</i> Usually socially, I guess. I don't really go out all that much though. I'm not very outgoing.</p> <p>I: Why do you say that you're not very outgoing? P: I don't know exactly. I think it just takes a lot of effort for me to do things with other people.</p> <p>I: I see. So you usually drink with other people when you do drink, but you don't go out that much because it feels like it takes a lot of effort? P: <i>*Monotone*</i> Yeah.</p> <p>I: When in social settings then, can you say a little bit more about the extra effort you feel it requires from you? P: I don't know sometimes I'm nervous I'll say something stupid or whatever. Something awkward. You know?</p> <p>I: Yeah, that sounds like it would be tough. Are there any other things you might think about in those settings? P: Sometimes I think that people are just judging me. Like they're going to, I don't know, think I'm just not fun to be around or something.</p> <p>I: Well thank you for sharing that with me. I don't mean to be overly personal. Last question: How much do you think a drink says about the person drinking it?</p>		<p><i>From SSAQ Question 3 ("I was afraid that others did not approve of me")</i></p> <p><i>From SSAQ Question 7 ("I found it hard to interact with people")</i></p> <p><i>From SSAQ Question 4 ("I was worried I would say or do the wrong things")</i></p> <p><i>From SSAQ Question 2 ("I was afraid other people noticed my shortcomings")</i></p>	<p>-Monotone</p> <p>-Gaze Avoidance</p> <p>-Monotone</p> <p>-Short Speech</p> <p>-Gaze Avoidance</p>
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<p>P: Ummmmm... <i>*Brief pause*</i> What do you mean?</p> <p>I: For example, some people will stereotype that a guy drinking a wine cooler is less manly or something like that. Do you have any thoughts about that kind of thing?</p> <p>P: Oh, not really. I don't pay much attention to what other people are drinking usually. I just focus on what I'm drinking.</p> <p>I: Could you say more about that?</p> <p>P: <i>*Looking downwards*</i> Yeah. I just order what sounds good usually.</p> <p>I: So, to make sure I understand you correctly, you don't really worry about drink stereotypes, you just order what sounds tasty at that moment?</p> <p>P: Yes.</p>			
<p>I: Ok, thank you. I'll leave for 10 minutes. Please remember to drink the drink evenly over that period.</p> <p><i>*The researcher walks off camera as the participant is seen taking their first sip*</i></p>	<p>18 words</p> <p>4 seconds</p>		
<p><b><i>*The video is now skipped towards the end*</i></b></p> <p><i>*The drink it is now empty*</i></p>			
<p>I: All done?</p> <p>P: Yeah.</p> <p><i>*There's a brief pause. The participant looks downwards for a moment while the researcher writes a brief note*</i></p>	<p>2 words</p> <p>1 word</p> <p>5 seconds</p>		-Short speech
<p>P: Sorry. I hope I don't mess up your study. It's just uncomfortable being the center of attention in an interview like this I guess. I'm not used to someone writing down everything I say.</p>	<p>34 words</p>	<p><i>From SSAQ, Question 6 ("I felt uncomfortable and embarrassed when I was the center of attention")</i></p>	
<p>I: No worries. I'm going to ask you some questions now that you've finished the drink and are experiencing its effects. So, let's get started. How would you describe the taste of the drink?</p>	<p>33 words</p>		
<p>P: <i>*Monotone, looking downwards*</i> It was fine.</p>	<p>3 words</p>		-Short Speech



			-Monotone -Gaze Avoidance
I: How sweet would you say the drink is?	8 words		
P: I hope you don't think it was weird that all I said about the taste was that it's fine. I'm not a drink expert or anything.	26 words	<i>From SSAQ, Question 5 ("When I was talking to someone, I was worried about what they were thinking of me")</i>	
I: Not a problem at all. We want your opinion, in a way, because you're not an expert. We want to know what normal people think. So, how sweet would you say the drink is?	34 words		
P: <i>*Monotone*</i> It's not very sweet, really.	5 words		-Short Speech -Monotone
I: How bitter would you say the drink is?	8 words		
P: <i>*Looking downwards*</i> It was bitter. But it wasn't so strong I couldn't finish it.	12 words		-Gaze Avoidance
I: Alright.	1 word		
I: How smooth, if you will, would you say the drink is?	11 words		
P: <i>*Monotone*</i> It was pretty smooth. <i>*Brief pause*</i> So are you gonna look at all these answers yourself?	18 words		-Monotone
I: No, we'll have an undergraduate research assistant enter it. Why?	10 words		
P: Oh. I just hope that they don't think my answers are weird or anything.	14 words	<i>From SSAQ, Question 1 ("I worried what other people thought of me")</i>	
I: They'll be focused on just entering it. I doubt they'd think anything bad about you. Plus, your name won't be attached to the data anyways.	44 words		

How did the flavor of the drink change as you drank more of it, if it changed at all?			
P: <i>*Monotone, looking downwards*</i> I got a little sick of it towards the end. But it was fine.	14 words		-Gaze Avoidance -Monotone
<i>*Interviewer nods and then consults their clipboard briefly*</i> <i>*Participant picks up a pen off the table and toys with it*</i> <i>*The pen falls apart in their hands (e.g., the little spring spits out the ink cartridge or something)*</i>	5 seconds		
P: <i>*As the participant scrambles to pick up the pieces of the pen*</i> Sorry, sorry. I probably wasn't supposed to do that.	9 words	From SSAQ, Question 4 ("I was worried I would say or do the wrong things")	
I: Do what?	2 words		
P: <i>*Looking downwards*</i> Mess with the pen. Sorry.	5 words		-Gaze Avoidance
I: No worries. It's just a pen.	6 words		
<i>*There's an awkward pause while the participant looks downwards and the researcher jots down some notes*</i>	5 seconds		
P: <i>*Monotone, looking downwards*</i> I hope you think I'm doing a good job. I've never done this before.	14 words	From SSAQ, Question 3 ("I was afraid that others did not approve of me")	-Monotone -Gaze Avoidance
I: <i>*Smiling*</i> You're doing just fine. There's no right or wrong answers. If you ordered this drink at a bar, would you recommend it to others?	24 words		
P: <i>*Monotone*</i> I don't know. Maybe.	4 words		-Monotone
I: Overall, how would you rate the drink from 1 to 7, with 1 being the worst you've ever had and 7 being the best you've ever had?	27 words		
P: <i>*Monotone*</i> Five, maybe.	2 words		-Short Speech -Monotone

I: As a drink that would hopefully prove popular, this drink is meant to be fairly enjoyable to a wide spectrum of people. How well do you think it accomplishes that goal?	30 words		
P: <i>*Monotone*</i> It's fine, I guess. I don't think many people would refuse to drink it.	14 words		-Monotone
I: Awesome. Now I just want to ask you some general questions about how you're feeling. How do you feel about yourself after finishing the drink?	25 words		
P: I was kinda [sic] thinking about you noticing the zit on my nose. I know that's sort of embarrassing.	19 words	<i>From: SSAQ, Question 2 ("I was afraid other people noticed my shortcomings").</i>	
I: Honestly, I didn't even notice. I'm not here to judge you. How do you feel towards other people having finished the drink?	23 words		
P: Other people, like, you? Or just other people in general?	10 words		
I: Other people in general.	4 words		
P: Oh, I dunno. I feel like I'm not being very conversational right now. I feel like I'm not talking a lot.	19 words	<i>From SSAQ, Question 7 ("I found it hard to interact with people")</i>	
I: I think you're doing fine. I appreciate your honesty. We're done with the questions, by the way, so let's go ahead and move on with the study.	25 words		

### Treatment

	Word count or Time in seconds	SSAQ item	Behavioral indicator of SA
<i>*Footage begins by showing the participant seated, having a full drink*</i> <i>*Participant is making fairly little eye contact (looking downwards)*</i>	4 seconds		-Gaze avoidance -Short speech -Monotone

<p><i>*There are frequent, at times awkward pauses between dialogue, and the participant is clearly not entirely comfortable*</i></p>			<p>- ?? (Note to self: Find a proper term for this in lit)</p> <p>-Rigid posture</p>
<p>I: I'd like you to drink this drink evenly over a 10 minute period. I'll leave you alone so that you can focus on the drink during that time. After the 10 minute period I'll return and ask you questions. Before you get started and I begin timing I'd like to ask a few preliminary questions. Sound good? P: <i>*Monotone*</i> Sure.</p> <p>I: How appetizing does the drink look to you? P: <i>*Monotone, looking downwards*</i> It looks fine, I guess. I: What about it makes it appear good or bad?</p> <p>P: It looks like it might be a little sour. I: How similar does the drink appear to others you've had? P: <i>*Monotone*</i> It looks normal, I guess. I: Looking at it, does this seem like a drink you'd order at a bar or even make at home? P: <i>*Looking downwards*</i> Maybe. I don't know.</p> <p>I: How wide of a variety of drinks would you say that you find enjoyable? P: I like most drinks alright.</p> <p>I: Alright. <i>*Researcher writes something down*</i> P: I hope this is helpful. I don't know what kind of information you're looking for here. I: I just want your thoughts and opinions. You're doing just fine.</p> <p>I: In what kinds of contexts, places, or situations do you usually do your drinking? P: <i>*Looking downwards*</i> Usually socially, I guess. I don't really go out all that much though. I'm not very outgoing.</p> <p>I: Why do you say that you're not very outgoing?</p>	<p>57 words</p> <p>1 word</p> <p>8 words 5 words</p> <p>9 words 10 words 5 words 19 words</p> <p>4 words</p>	<p><i>From SSAQ Question 3 ("I was afraid that others did not approve of me")</i></p> <p><i>From SSAQ Question 7 ("I found it hard to interact with people")</i></p> <p><i>From SSAQ Question 4 ("I</i></p>	<p>-Gaze Avoidance</p> <p>-Short speech -Monotone</p> <p>-Monotone -Short Speech -Gaze Avoidance</p> <p>-Short Speech</p> <p>-Monotone</p> <p>-Short Speech -Monotone</p> <p>-Monotone</p> <p>-Gaze Avoidance</p> <p>-Monotone</p>

<p>P: I don't know exactly. I think it just takes a lot of effort for me to do things with other people.</p> <p>I: I see. So you usually drink with other people when you do drink, but you don't go out that much because it feels like it takes a lot of effort?</p> <p>P: <i>*Monotone*</i> Yeah.</p> <p>I: When in social settings then, can you say a little bit more about the extra effort you feel it requires from you?</p> <p>P: I don't know sometimes I'm nervous I'll say something stupid or whatever. Something awkward. You know?</p> <p>I: Yeah, that sounds like it would be tough. Are there any other things you might think about in those settings?</p> <p>P: Sometimes I think that people are just judging me. Like they're going to, I don't know, think I'm just not fun to be around or something.</p> <p>I: Well thank you for sharing that with me. I don't mean to be overly personal. Last question: How much do you think a drink says about the person drinking it?</p> <p>P: Ummmmm... <i>*Brief pause*</i> What do you mean?</p> <p>I: For example, some people will stereotype that a guy drinking a wine cooler is less manly or something like that. Do you have any thoughts about that kind of thing?</p> <p>P: Oh, not really. I don't pay much attention to what other people are drinking usually. I just focus on what I'm drinking.</p> <p>I: Could you say more about that?</p> <p>P: <i>*Looking downwards*</i> Yeah. I just order what sounds good usually.</p>		<p><i>was worried I would say or do the wrong things")</i></p> <p><i>From SSAQ Question 2 ("I was afraid other people noticed my shortcomings")</i></p>	<p>-Short Speech</p> <p>-Gaze Avoidance</p>
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I: So, to make sure I understand you correctly, you don't really worry about drink stereotypes, you just order what sounds tasty at that moment? P: Yes.			
I: Ok, thank you. I'll leave for 10 minutes. Please remember to drink the drink evenly over that period. <i>*The researcher walks off camera as the participant is seen taking their first sip*</i>	18 words  4 seconds		
<b><i>*The video is now skipped towards the end*</i></b> <i>*The drink it is now empty. The participant seems more relaxed and generally sociable. He or she is making normal eye contact, has a friendly intonation to his or her speech, and demonstrates a generally relaxed posture.*</i>			
I: All done? P: Yup. <i>*Participant smiles at the researcher while responding*</i> <i>*There's a brief pause. The participant appears content and comfortable. He or she glances lazily around the room while the researcher writes a brief note*</i>	2 words 1 word 5 seconds		
P: I really hope it doesn't rain tonight. I was going to go down to Dickson with some friends later and sing karaoke. We all go pretty much every Thursday night, Friday now and then.	34 words	<i>From SSAQ, Question 6 ("I felt uncomfortable and embarrassed when I was the center of attention")</i>	
I: It sounds like a good time. I'm going to ask you some questions now that you've finished the drink and are experiencing its effects. How would you describe the taste of the drink?	33 words		
P: <i>*Smiling*</i> Not too bad.	3 words		
I: How sweet would you say the drink is?	8 words		
P: Well, before I answer, I just want to add that I'm not huge on mixed drinks in general. I like them fine and all, but I usually stick to beer or shots. I wouldn't really order a mixed drink at a bar.	43 words	<i>From SSAQ, Question 5 ("When I was talking to someone,</i>	

		<i>I was worried about what they were thinking of me")</i>	
I: Not a problem at all. We want your opinion, in a way, because you're not an expert. We want to know what normal people think. So, how sweet would you say the drink is?	34 words		
P: <i>*Smiling*</i> Oh, it was mildly sweet.	5 words		
I: How bitter would you say the drink is?	8 words		
P: It was bitter. Didn't really bother me though. It wasn't <i>that</i> strong.	12 words		
I: How smooth, if you will, would you say the drink is?	11 words		
P: It was fairly smooth. <i>*Brief pause*</i> So is this your study and you have to type in everything I've said?	18 words		
I: No, we'll have an undergraduate research assistant enter it. Why?	10 words		
P: I was just curious. You think they have a good time reading people's thoughts?	14 words	<i>From SSAQ, Question 1 ("I worried what other people thought of me")</i>	
I: They'll be focused on just entering it. I doubt they'll spend much time thinking about it too much, honestly. Maybe the first few they enter. How did the flavor of the drink change as you drank more of it, if it changed at all?	44 words		
P: It was fine, but I liked it better in the beginning I would say.	14 words		
<i>*Interviewer nods and then consults their clipboard briefly*</i> <i>*Participant picks up a pen from the table and plays with it*</i> <i>*The pen breaks apart into several pieces as a result*</i>	5 seconds		

<i>*While casually picking up the pieces of the pen*</i> P: <i>*Laughs*</i> Oh man, your pen just malfunctioned a bit there.	9 words	<i>From SSAQ, Question 4 ("I was worried I would say or do the wrong things")</i>	
I: <i>*Looking up from clipboard*</i> Sorry, what?	2 words		
P: The pen, it fell apart.	5 words		
I: Oh, yeah, they're pretty cheap pens.	6 words		
<i>*There's a pause while the researcher jots down some brief notes*</i>	5 seconds		
P: This stuff is kind of cool. I've never volunteered for anything like this before.	14 words	<i>From SSAQ, Question 3 ("I was afraid that others did not approve of me")</i>	
I: <i>*Smiling*</i> Well you're doing just fine, and I'm glad you were able to make it. If you ordered this drink at a bar, would you recommend it to others?	24 words		
P: Yeah, I probably would.	4 words		
I: Overall, how would you rate the drink from 1 to 7, with 1 being the worst you've ever had and 7 being the best you've ever had?	27 words		
P: Probably five.	2 words		
I: As a drink that would hopefully prove popular, this drink is meant to be fairly enjoyable to a wide spectrum of people. How well do you think it accomplishes that goal?	30 words		
P: I think it'd be fine. I doubt you'd have people refuse to drink it.	14 words		
I: Awesome. Now I just want to ask you some general questions about how you're feeling. How do you feel about yourself after finishing the drink?	25 words		
P: I feel pretty good. I was worried earlier that I'd have to work today and maybe cancel on you. So I was probably a little more uptight than my normal self today.	32 words	<i>From: SSAQ, Question 2 ("I was afraid other people noticed")</i>	



		<i>my shortcomings”).</i>	
I: I wouldn't have been upset. I'm not here to judge you. How do you feel towards other people having finished the drink?	23 words		
P: Other people, like, you? Or just other people in general?	10 words		
I: Other people in general.	4 words		
P: Normal. I mean, I guess that I'm feeling pretty relaxed after the drink. I'm feeling pretty social, you know.	19 words	<i>From SSAQ, Question 7 (“I found it hard to interact with people”)</i>	
I: Awesome, and thanks. I appreciate your responses. We're done with the questions, by the way, so let's go ahead and move on with the study.	25 words		

## Appendix O

### One-On-One Interview Questions

*I'd like you to drink this drink evenly over a 10 minute period. I'll leave you alone so that you can focus on the drink during that time. After the 10 minute period I'll return to ask you questions. Before you get started and I begin timing I'd like to ask a few preliminary questions.*

1. How appetizing does the drink look to you?
2. What about it makes it appear good or bad?
3. How similar does the drink appear to others you've had?
4. Looking at it, does this seem like a drink you'd order at a bar or even make at home?
5. How wide of a variety of drinks would you say that you find enjoyable?
6. In what kinds of contexts, places, or situations do you usually do your drinking?
7. How much do you think a drink says about the person drinking it?

*Thank you. I'll leave for 10 minutes. Please remember to drink the drink evenly over that period.*

*\*10 minutes later\* I'm going to ask you some questions now that you've finished the drink and are experiencing its effects.*

8. How would you describe the taste of the drink?
9. How sweet would you say the drink is?
10. How bitter would you say the drink is?
11. How smooth would you say the drink is?
12. How did the flavor of the drink change as you drank more of it, if it changed at all?
13. If you ordered this drink at a bar, would you recommend it to others?
14. Overall, how would you rate the drink from 1 to 7, with 1 being the worst you've ever had and 7 being the best you've ever had?
15. As a drink that would hopefully prove popular, this drink is meant to be fairly enjoyable to a wide spectrum of people. How well do you think it accomplishes that goal?

*Switching gears a little bit, now I want to ask some general questions about how you're feeling.*

16. How do you feel about yourself after finishing the drink?

17. How do you feel towards other people having finished the drink?

*Thank you. We're done with the questions, so let's move on with the study.*

## **Appendix P**

### **Behavioral Social Anxiety Items**

*Would you be willing to participate in a videotaped session during which you'd talk about the drink as well as your own personality style?*

1. Would you be willing to take part in this? Yes / No
2. What made you choose to say (yes or no)?

## Appendix Q

### Manipulation Check Questions

1. How would you describe the new drink to consumers?
2. What are some ways the drink could be improved?
3. Please think about the drink you consumed. Please rate it on the following:
  - a. Amount of alcohol in the drink compared to mixer alone (0 = almost no alcohol/no alcohol; 4 = just the right strength of alcohol; 7 = far too strong)
  - b. Taste profile compared to other drinks you've had (0 = too bitter; 4 = just right; 7 = too sweet)
  - c. How tasty the drink appeared just looking at it (0 = not at all exciting; 4 = somewhat exciting; 7 = extremely exciting)
  - d. How likely you would be to purchase it in the future (0 = not at all likely; 4 = somewhat likely; 7 = extremely likely)
  - e. Amount the drink would likely cost compared to other drinks you've had (0 = it would cost very little; 4 = it would cost an average amount; 7 = it would cost a lot)

*The next questions ask about your perceptions of the person in the video you watched.*

4. I believe this person's personality is a good fit for this drink.
  - 1= Very Slightly / Not at all*
  - 2 = A Little*
  - 3 = Moderately*
  - 4 = Very Much*
  - 5 = Extremely*
5. In the second half of the interview, the person appeared concerned with what others might think about them.
  - 1= Very Slightly / Not at all*
  - 2 = A Little*
  - 3 = Moderately*
  - 4 = Very Much*
  - 5 = Extremely*
6. In the second half of the interview, the way the person acted is similar to how most people would behave in this interview.
  - 1= Very Slightly / Not at all*
  - 2 = A Little*
  - 3 = Moderately*
  - 4 = Very Much*
  - 5 = Extremely*
7. In the second half of the interview, the person spoke in short sentences.
  - 1= Very Slightly / Not at all*
  - 2 = A Little*
  - 3 = Moderately*
  - 4 = Very Much*
  - 5 = Extremely*

8. In the second half of the interview, the person's posture suggested that they were comfortable.  
 1= *Very Slightly / Not at all*  
 2 = *A Little*  
 3 = *Moderately*  
 4 = *Very Much*  
 5 = *Extremely*
9. In the second half of the interview, the person found it hard to interact with people.  
 1= *Very Slightly / Not at all*  
 2 = *A Little*  
 3 = *Moderately*  
 4 = *Very Much*  
 5 = *Extremely*
10. In the second half of the interview, the person made a typical amount of eye contact.  
 1= *Very Slightly / Not at all*  
 2 = *A Little*  
 3 = *Moderately*  
 4 = *Very Much*  
 5 = *Extremely*
11. The participant behaved the same way in both parts of the interview.  
 1= *Very Slightly / Not at all*  
 2 = *A Little*  
 3 = *Moderately*  
 4 = *Very Much*  
 5 = *Extremely*
12. Please select the answer that best describes how intoxicated you felt you were after consuming the drink.
- |    |                              |
|----|------------------------------|
| a. | _____ Not at all intoxicated |
| b. | _____ Slightly intoxicated   |
| c. | _____ Moderately intoxicated |
| d. | _____ Quite intoxicated      |
| e. | _____ Extremely intoxicated  |
13. How helpful was the video for you in completing the study?
- |    |                          |
|----|--------------------------|
| a. | _____ Not at all helpful |
| b. | _____ Slightly helpful   |
| c. | _____ Moderately helpful |
| d. | _____ Quite helpful      |
| e. | _____ Extremely helpful  |

14. How similar was your interview to the one on the video?

- a. \_\_\_\_\_ Not at all similar
- b. \_\_\_\_\_ Slightly similar
- c. \_\_\_\_\_ Moderately similar
- d. \_\_\_\_\_ Quite similar
- e. \_\_\_\_\_ Extremely similar

15. How much do you feel your responses to the interview were impacted as a result of watching the video?

- a. \_\_\_\_\_ Not at all changed
- b. \_\_\_\_\_ Slightly changed
- c. \_\_\_\_\_ Moderately changed
- d. \_\_\_\_\_ Quite changed
- e. \_\_\_\_\_ Extremely changed

16. How similar was the video to what you were expecting?

- a. \_\_\_\_\_ Very Slightly/Not at all
- b. \_\_\_\_\_ A little
- c. \_\_\_\_\_ Moderately
- d. \_\_\_\_\_ Very much
- e. \_\_\_\_\_ Extremely

17. To what extent do you feel that you would do a better job in the video?

- f. \_\_\_\_\_ Very Slightly/Not at all
- g. \_\_\_\_\_ A little
- h. \_\_\_\_\_ Moderately
- i. \_\_\_\_\_ Very much
- j. \_\_\_\_\_ Extremely

18. How could we make the video better? \_\_\_\_\_

## Appendix R

### Debriefing Questions

1. What was this study about?
2. What if anything made you question that this study was really about what we initially told you? \_\_\_\_\_
3. I believed that I had consumed more than trace amounts of alcohol (i.e., not been given a placebo drink).
  - a. \_\_\_\_\_ Strongly Disagree
  - b. \_\_\_\_\_ Somewhat Disagree
  - c. \_\_\_\_\_ Neither Agree or Disagree
  - d. \_\_\_\_\_ Somewhat Agree
  - e. \_\_\_\_\_ Strongly Agree
4. What if anything made you question whether the drink had contained more than trace amounts of alcohol? \_\_\_\_\_
5. What if anything made you question if the video you were shown was staged/scripted?  
\_\_\_\_\_
6. I believed that the video I was shown was an unscripted interaction.
  - a. \_\_\_\_\_ Strongly Disagree
  - b. \_\_\_\_\_ Somewhat Disagree
  - c. \_\_\_\_\_ Neither Agree or Disagree
  - d. \_\_\_\_\_ Somewhat Agree
  - e. \_\_\_\_\_ Strongly Agree



7. I believed that I was being shown the video solely for instructional purposes (i.e., being shown it to see what the interview looks like).

- |    |                                 |
|----|---------------------------------|
| a. | _____ Strongly Disagree         |
| b. | _____ Somewhat Disagree         |
| c. | _____ Neither Agree or Disagree |
| d. | _____ Somewhat Agree            |
| e. | _____ Strongly Agree            |

8. Any other comments regarding the believability of the study? \_\_\_\_\_

## Appendix S

### Statement of Debriefing

**Title:** Social Anxiety Reduction in the Context of Social Modeling Utilizing a Placebo Alcohol Beverage

**Principal Researcher:** Kyle K. Jackson, B.Sc., Graduate Student, University of Arkansas

**Faculty Advisor:** Lindsay S. Ham, Ph.D., University of Arkansas

Thank you for your participation! You have just participated in a study that was designed to test how well a videotaped interview would facilitate the social modeling of a social anxiety reduction (i.e., “social lubrication”) as a result of consuming a placebo alcoholic beverage, and how this varies for men and women

While this study examined this social modeling effect, rather than investigating people’s thoughts and opinions regarding a new drink, it was necessary to deceive you so as to observe the most realistic impact of the videotaped interview on your own feelings of social anxiety following the placebo drink. We told you that the drink contained more than trace amounts of alcohol (i.e., was not a placebo) for the purposes of separating the intoxicating effects of alcohol from any social modelling effects. Lastly, we asked you about your willingness to complete a videotaped interview to see if those who viewed someone who became less anxious after consuming the drink are more willing to do the videotaped interview after the placebo drink compared to those that watched a video of someone who continues to be anxious after drinking.

We apologize for the deception, but it was necessary to examine how men and women would be impacted by this type of social modeling when consuming a drink believed to be alcohol (but including trace amounts of alcohol with little to no physiological effect). A scientific understanding of how social modelling may play a role in people’s subjective feelings of social anxiety after drinking an alcohol placebo can assist researchers in developing treatment and prevention programs for alcohol use disorders.

If you have any questions regarding the research you just participated in, feel free to ask the experimenter. You may also contact Dr. Lindsay Ham (575-4256). If you have any questions concerning the rights of participants in research studies, you may contact the Office of Research and Sponsored Programs (575-2208).

***In order to maintain strict confidentiality, please refrain from discussing any part of this experiment with others once you have completed the study.*** This is an ongoing experiment, so we would greatly appreciate if you would not discuss this with other students, as they may participate in the experiment later. It is really important that people do not find out about these details of the study before they participate so we can study their realistic behavior. The study will not work properly if our participants know what is going to happen when they come in.

If you experience any adverse effects from participating in this study, or have any questions, please contact Kyle Jackson ([kkjackso@uark.edu](mailto:kkjackso@uark.edu)) or Dr. Lindsay Ham ([lham@uark.edu](mailto:lham@uark.edu)). Provided below is a list of local mental health resources if you experience distress from the study or otherwise have feelings, emotions, or behaviors that you would like to discuss with a mental health professional.

1. Psychological Clinic (Memorial Hall 111)  
575-4258
2. Crisis Center Hotline  
1-888-274-7472
3. Ozark Guidance  
750-2020
4. Ozark Guidance (24 hr line)  
1-800-234-7052
5. Counseling and Psychological Services  
575-5276

(24 hr line) 575-5276

You may also contact the University of Arkansas Research Compliance office listed below if you have questions about your rights as a participant, or to discuss any concerns about, or problems with the research. This information is provided solely for your convenience. The University of Arkansas provides no endorsement or guarantee of the services provided by the above facilities.

Ro Windwalker, CIP  
Office of Research Compliance  
University of Arkansas  
109 MLKG  
1424 Martin Luther King Jr. Blvd  
Fayetteville, AR 72701-1201  
(479) 575-2208  
irb@uark.edu

Thank you for your participation!




---

**To:** Kyle Kevin Jackson  
 BELL 4188  
**From:** Douglas James Adams, Chair  
 IRB Committee  
**Date:** 04/22/2019  
**Action:** **Expedited Approval**  
**Action Date:** 04/15/2019  
**Protocol #:** 1708006713A003  
**Study Title:** Social Anxiety Reduction in the Context of Social Modeling Utilizing a Placebo Alcohol Beverage  
**Expiration Date:** 08/10/2019  
**Last Approval Date:** 04/15/2019

The above-referenced protocol has been approved following expedited review by the IRB Committee that oversees research with human subjects.

If the research involves collaboration with another institution then the research cannot commence until the Committee receives written notification of approval from the collaborating institution's IRB.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date.

Protocols are approved for a maximum period of one year. You may not continue any research activity beyond the expiration date without Committee approval. Please submit continuation requests early enough to allow sufficient time for review. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study closure.

**Adverse Events:** Any serious or unexpected adverse event must be reported to the IRB Committee within 48 hours. All other adverse events should be reported within 10 working days.

**Amendments:** If you wish to change any aspect of this study, such as the procedures, the consent forms, study personnel, or number of participants, please submit an amendment to the IRB. All changes must be approved by the IRB Committee before they can be initiated.

You must maintain a research file for at least 3 years after completion of the study. This file should include all correspondence with the IRB Committee, original signed consent forms, and study data.

cc: Lindsay S Ham-Holm, Investigator  
 Kelly Elizabeth Walls, Key Personnel  
 Maria De la Luz Folkerth, Key Personnel  
 Conner Ray, Key Personnel  
 Kylie Elizabeth Schultz, Key Personnel  
 Ebony A. Walker, Key Personnel